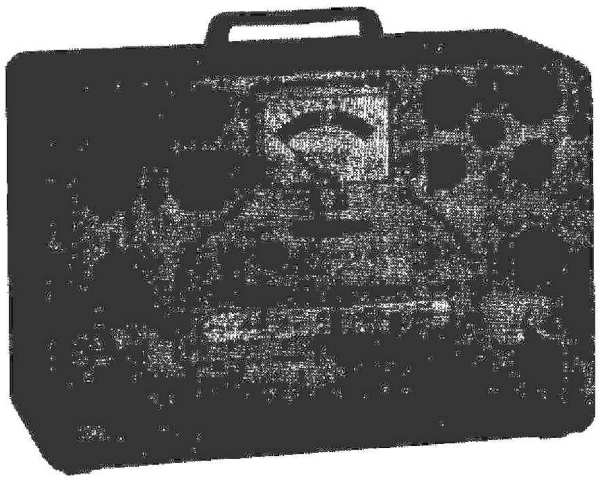
Assembly and Operation of the HEATHKIT TUBE CHECKER

MODEL IT-17



HEATH COMPANY
BENTON HARBOR,
MICHIGAN 49022

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SPECIFICATIONS

Tube Socket Accommodations	4 - pin. 5 - pin. 5 - pin Nuvistor. 6 - pin. 7 - pin combination and pilot lamp. 7 - pin miniature. 7 - pin Nuvistor. 8 - pin octal. 8 - pin loctal. 9 - pin miniature. 9 - pin Novar. 10- pin miniature. 12- pin Compactron.
Controls	FILAMENT VOLTAGE SET LINE TYPE PLATE
Element Test Voltages	30, 100, and 250 volts AC.
Filament Voltages	.63, 1.4, 2, 2.35, 2.5, 3.15, 4.2, 4.7, 5, 6.3, 7.5, 9.45, 12.6, 19.6, 25, 32, 50, 70, and 110 volts AC.
Roll Chart Mechanism	Constant tension, free rolling, thumbwheel operated, illuminated.
Line Voltage Adjustment	Step type.
Meter	1 milliampere full scale, BAD - ? - GOOD scale, illuminated.
Tests Available	Emission, Short, Leakage, Open Element, and Filament continuity.
Power Requirements	105-125 volts 50/60 cps AC.
Dimensions	13" wide x 8-1/2" high x 5-1/2" deep.
Net Weight	9 lbs.

The Heath Company reserves the right to discontinue instruments and to change specifications at any time without incurring any obligations to incorporate new features in instruments previously sold.

INTRODUCTION

A vacuum tube possesses a number of operating characteristics, any one of which may be used to indicate, to a limited degree, the operational capabilities of the tube. Any number of tube testing devices are available, utilizing one or more of these characteristics, each one subject to its own limitations. It is universally recognized that no tube tester can provide a complete and accurate account of the condition existing within a given vacuum tube when that tube is in operation in the receiver. If maximum benefit is to be obtained from a tube tester, regardless of its design, two things should be known: (1) the requirements placed on the tube, and (2) the limitations of the tube tester. With this thought in mind, we have listed some of the more commonly used methods of tube testing.

EMISSION TESTING

Testing the emission capabilities of the cathode provides the simplest and most economical means of determining the overall quality of a vacuum tube. This is accomplished by connecting all the grids to the plate and operating the tube as a rectifier. The actual emission of the cathode is then compared to a predetermined value accepted as standard for that tube type. If the cathode should have one particularly active portion, the emission checker will indicate the quality of the tube to be good, even though the remainder of the cathode may be inactive. On the other hand, modern coated cathodes are capable of large emission, often far in excess of the emission required for the particular application. In some cases the emission checker will indicate the quality of the tube to be questionable or even unacceptable. This tube may not function in an application requiring a large emission but would probably operate satisfactorily for a long time in a circuit where the emission requirements are less.

TRANSCONDUCTANCE TESTING

A transconductance tester places a standard voltage on each tube element, creating a plate current flow. Measurement of this plate current will indicate the transconductance of that particular tube under static conditions. Here again, since the tube is not operating exactly as it does in the receiver, the test may be termed inconclusive. An improved version of the transconductance test is available in the dynamic transconductance tester.

DYNAMIC TRANSCONDUCTANCE TESTING

The dynamic transconductance of a tube is measured by using the circuit of the static transconductance tester and adding a signal generator. By applying a signal to the tube under test, the action of the plate current will be similar to that experienced in the receiver, varying in relationship to the input signal. Although this system gives an indication of how the tube will operate under signal conditions, it is still limited in scope. Certain types of tubes cannot be satisfactorily checked on any type of tester, even the dynamic transconductance tester. Particular offenders in this respect are tubes used in the vertical and horizontal deflection circuits of television receivers. The only method of accurately checking these tubes is by set testing.

SET TESTING

No tube tester is required in this system of tube testing; simply insert a new tube in the receiver and observe the results. At first glance this appears to be the most inexpensive testing system available. Bear in mind, however, that if all tubes were to be tested in this manner, a stock of tubes representing an investment of several hundred dollars is required.

POWER OUTPUT TESTING

This testing system is perhaps the most satisfactory in regards to similarity between test results and actual operation in the receiver. Since both the input and output powers are known, the other factors can be determined. In the case of voltage amplifiers the voltage amplification and output voltage will be of prime interest. The power output test is ideally suited to testing power amplifiers, where the output power is of major concern.

LOW LINE TEST

In this testing system the input voltage to the receiver is lowered to 105 volts. Sufficient time should be allowed (10 minutes) for the tube heaters to stabilize. If the questionable tube fails to function properly it should be replaced.

INSTRUMENT DESCRIPTION

In designing a tube checker, the designer is faced with the problem of deciding which of the

above mentioned testing procedures to follow. Points that must be considered are the cost, relative merits of each system, and the net value to the purchaser. On the basis of these and other considerations, the HEATHKIT Tube Checker has been designed around the emission testing circuit. There are several reasons for this decision, some of which are: (1) the emission checker will provide the best overall indication of tube quality when compared with other types on a cost per unit basis, (2) the transconductance of a tube is dependent upon cathode emission, (3) some busy servicemen do not wish to take the time necessary to check the tube thoroughly. They plug in the tube, push the button and observe the meter to check the emission; if the emission of the tube is too low for the intended service, determining any of the other characteristics is a waste of valuable time, (4) the emission testing circuit is relatively simple, requires few components, and lends itself well to kit-type construction, and (5) the low selling price made possible by the use of this circuit more than compensates for any inherent shortcomings it may possess. We sincerely believe the HEATHKIT Tube Checker will give the most test information per dollar invested.

The action of the instrument has been made quite flexible by the use of multiple filament voltages, adjustable cathode current, variable meter sensitivity and individual element switching. The thirteen lever switches make it possible to connect any element to any other element, regardless of the pin numbers involved.

The instrument may be used in darkened areas (such as the inevitable dark corner behind the TV receiver) with ease since both the roll chart and the meter are illuminated.

No difficulty should be experienced in roll chart operation on the part of the left-handed operator. Thumbwheel drive knobs have been provided on both sides of the panel to eliminate any "cross-over" problems. The roll chart mechanism is a unique design which permits the roll chart to run freely throughout its entire length without binding. The chart rollers are spring loaded to keep the chart taut at all times to present a smooth viewing surface.

TUBE TYPE ACCOMMODATIONS

The HEATHKIT Tube Checker was designed for checking tubes encountered in everyday radio and TV service work, but is not specifically limited to these types. It will check satisfactorily any tube that can be accommodated in the tube sockets if the data provided by the tube manufacturer is available. Sockets provided are: 4-pin, 5-pin, 5-pin Nuvistor, 6-pin, 7-pin combination and pilot lamp, 7-pin miniature, 7-pin Nuvistor, 8-pin octal, 8-pin loctal, 9-pin Novar, 10-pin miniature, and 12-pin Compactron.

The 10-pin miniature socket is constructed so that it can also be used to check 9-pin miniature tubes.

ROLL CHART DATA

The roll chart contains necessary data for the checking of currently used tubes. But it is not always possible to furnish a roll chart that has all the latest tubes on it, because of the constantly growing list of tubes and the time it takes to obtain sample tubes, conduct tests, and publish roll charts. Therefore, to keep your roll chart up to date, you may be interested in subscribing to the Heathkit Tube Test Data Service, which will regularly supply you with the latest data for newly released tubes. To subscribe to this service, fill out and send in the Heathkit Tube Test Data Service Card.

FILAMENT VOLTAGES

Filament voltages used in the operation of the tube checker are derived from a secondary winding on the power transformer which is tapped to provide nineteen different voltages. These voltages are switch selected for convenience of operation and assure the application of the proper filament voltage for a given tube type under test.

TEST VOLTAGES

Voltages used in the various tests provided by the Tube Checker are derived from a secondary winding on the power transformer which is tapped at 30, 100, and 250 volts. During the operation of the Checker, three basic circuits are set up using these voltages.

LINE TEST CIRCUIT

The first basic circuit, Figure 1, is in use when the TEST switch is in the SHORT ADJUST position. The SET LINE switch in the primary of the power transformer varies the voltage across the primary, thus controlling the voltage across both secondary windings simultaneously. The

meter, with the voltage divider and rectifier network now in the circuit, will indicate the proper secondary voltage when the needle is within the LINE TEST block. The purpose of the SET LINE switch is to assure proper voltages on the tube under test, thus minimizing the possibility of an erroneous indication due to abnormally high or low power line voltages.

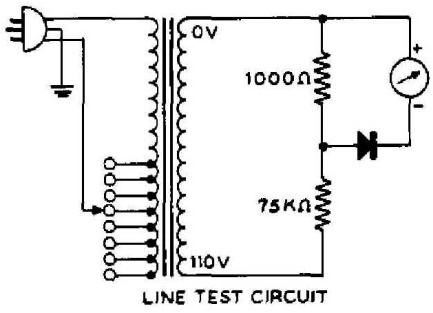
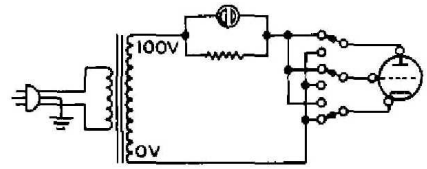


Figure 1

SHORT TEST CIRCUIT

The second basic circuit, Figure 2, is used in the short, leakage, and filament continuity tests. The 100 volt tap is connected to the neon short indicator and associated network and is in series with the plate of the tube under test. The meter is not in the circuit; the tests are indicated by the neon lamp. Moving the lever switches in the prescribed manner connects the tube elements in such a manner that a shorted element will cause considerable increased current flow through the resistor in parallel with the neon lamp. The voltage drop then produced reaches the operating voltage of the neon lamp causing it to glow, thus indicating a short. For the leakage test, the circuit remains unchanged in all respects except one: the value of the resistance in parallel with the neon lamp is increased, thus increasing the sensitivity of the test. The term "short" as used in this test should not be confused with the direct short formed by connecting two terminals with a piece of wire. The sensitivity rating of the short test is 250 KΩ, which means the lamp will glow if the resistance between the shorted elements is anywhere between the values of 0 and 250,000 ohms. The sensitivity rating of the leakage test (high-sensitivity short test) is 2 megohms which means that the lamp will glow if the resistance is anywhere between 0 and 2,000,000 ohms. Actually, this test may be altered to any desired sensitivity by replacing the 2.2 megohm resistor with the required value. The short test is a very critical test and should be performed carefully and evaluated in terms of the amount of leakage which can be tolerated in the circuit.

Figure 2



QUALITY TEST CIRCUIT

The third basic circuit, Figure 3, is used when making the quality and open element tests. The plate and grids are connected together to the 30 volt transformer tap. The filament and cathode are connected together to the 0 volt tap of the high voltage winding through the PLATE control. The PLATE control adjusts the sensitivity of the meter, which is in the circuit at this time. The tube now conducts as a half-wave rectifier, the total emission of the cathode being passed to a single terminal (anode) and out through the meter circuit.

A good tube, with the sensitivity of the meter properly adjusted, will have sufficient cathode emission to swing the meter needle into the GOOD section of the scale. If the emission is too low, the current through the tube will not be high enough to bring the needle into the GOOD section; it will remain in the (?) section or drop into the BAD section.

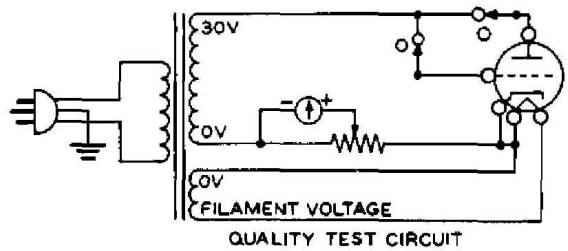


Figure 3

An open element may be detected in the following manner. Since all tube elements (except cathode) are connected to the plate terminal, the current indicated by the meter during the quality test represents the total current through the tube. Disconnecting an element from the plate terminal will cause the current through the tube to diminish. The meter reading will then be less than originally noted. Therefore, a drop in the meter reading indicates the ele-

ment is not open. If the element were open, disconnecting it from the plate terminal would make no change in the tube current, hence no change in the meter reading. For tubes with a number of grids, the operation is somewhat more complex, but the same theory applies in general. For gas tubes (OZ4, etc.) the 250 volt tap is used instead of the 30 volt tap. The rest of the circuitry remains unchanged.

The TYPE switch places the appropriate resistance value in the plate circuit of the tube under test to limit the cathode-current. This switch also changes the meter sensitivity to obtain the proper meter deflection for this value of cathode current.

CONSTRUCTION NOTES

This manual is supplied to assist you in every way to complete your kit with the least possible chance for error. The arrangement shown is the result of extensive experimentation and trial. If followed carefully, the result will be highly stable and dependable performance. We suggest that you retain the manual in your files for future reference, both in the use of the equipment and for its maintenance.

UNPACK THE KIT CAREFULLY AND CHECK EACH PART AGAINST THE PARTS LIST. In so doing, you will become acquainted with the parts. Refer to the information on the inside covers of the manual to help you identify the components. If some shortage or parts damage is found in checking the Parts List, please read the Replacements section and supply the information called for therein.

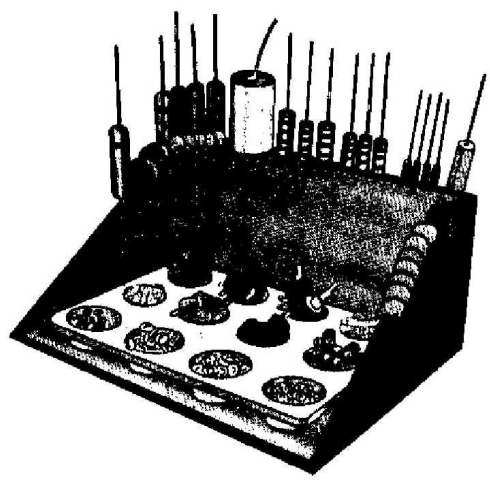
Resistors generally have a tolerance rating of 10% unless otherwise stated in the Parts List. Tolerances on capacitors are generally even greater. Limits of +100% and -20% are common for electrolytic capacitors.

We suggest that you do the following before work is started:

1. Lay out all parts so that they are readily available.

2. Provide yourself with good quality tools. Basic tool requirements consist of a screwdriver with a 1/4" blade; a small screwdriver with a 1/8" blade; long-nose pliers; wire cutters, preferably separate diagonal cutters; a penknife or a tool for stripping insulation from wires; a soldering iron (or gun) and rosin core solder. A set of nut drivers and a nut starter, while not necessary, will aid extensively in construction of the kit.

Most kit builders find it helpful to separate the various parts into convenient categories. Muffin tins or molded egg cartons make convenient trays for small parts. Resistors and capacitors may be placed with their lead ends inserted in the edge of a piece of corrugated cardboard until they are needed. Values can be written on the cardboard next to each component. The illustration shows one method that may be used.



USING YOUR TUBE CHECKER

The instrument you have just completed will provide a variety of tests to indicate the relative value of the particular tube being checked. The following steps may be used as a guide in setting up tube testing procedures. Remember that the ultimate value of any measuring device is dependent upon the skill of the operator and, more important, his ability to properly evaluate the information provided by the instrument.

1. With the power cord connected, move the roll chart to the listing of the tube to be tested. If an asterisk (*) appears after the tube designation, refer to the proper note at the bottom of the roll chart. Turn the SET LINE control until the meter pointer falls within the LINE TEST block.

2. Set the TYPE switch to the number shown on the chart.

3. Set the FILAMENT selector to the voltage shown on the chart.

4. Set the PLATE control according to the chart information.

5. Set the LEVER switches to the T-TOP and B-BOTTOM positions as shown in the top and bottom columns on the chart.

6. If the tube being tested has a plate or grid cap extending from the top of the tube, connect the clip at the upper right of the panel to this cap.

7. Insert the tube and reset the SET LINE control if necessary. (Pin positions and keyways determine tube positioning on all sockets.)

8. Check the tube for shorts by moving the levers shown in light type through the two positions, returning to the position shown on the chart. The TEST switch remains in the SHORT position for this test. The SHORT-LEAKAGE switch should be in the SHORT position. A shorted tube is indicated by a steady glow of the neon lamp. Disregard neon lamp flashing as the lever switches are moved. It is possible that some serious short circuits will momentarily overload the power transformer. This condition will be indicated by complete dim out of the panel lamps. Do not allow the Tube Checker to operate under this extreme condition for any length of time. Make the test as quickly as possible in order to obtain the desired information.

9. Check the tube for leakage between elements by moving the SHORT-LEAKAGE switch to the LEAKAGE position and repeating the short test as outlined above.

10. After allowing sufficient time for the tube to reach operating temperature, check for quality by moving the test slide switch to the TEST position. If the meter pointer falls in the GREEN scale, the quality of the tube is GOOD.

11. Check for open elements as follows: holding the slide switch in the TEST position, move each lever in the TOP position (only those shown in light type) to the BOTTOM position and return. Satisfactory tube elements (those properly connected to their pins) are indicated by a decrease in meter reading. The grid element usually shows a large decrease, while a screen or plate may show only a slight decrease.

    NOTE: If the meter indication in the quality test is off scale, reduce the meter reading to an on-scale reading by turning the PLATE control counterclockwise, then proceed with the open element test.

12. To check filaments, filament taps and internal connections for continuity, set the FILAMENT selector to .63 volts. Move each lever shown in dark type through each of its other two positions. Always move only one lever at a time. Satisfactory filaments, taps, and internal connections will be shown by a bright glow of the SHORT test indicator.

In any of the above tests, should the tube prove to be faulty in some respect, the defective element can be traced by comparing the lever switch in question with a base diagram of the tube. Lever switch A corresponds to tube pin 1, lever switch B to tube pin 2, etc.

Multiple tube types (tubes which contain more than one set of elements) are indicated on the chart by a bracket set of listings, one for each test to be made on the tube. The Checker is set up according to the test in each line and checked through all of the test as outlined in the preceding steps.

Check pilot lamps by setting the FILAMENT selector to the proper voltage and inserting the pilot lamp in the socket found in the center of the large 7-pin socket. This is a universal type pilot lamp test socket and does not require that the lamp be permanently inserted. It is only necessary to hold the pilot lamp so that the side wall of the base and the center pin of the lamp make contact with the corresponding points in the lamp socket.

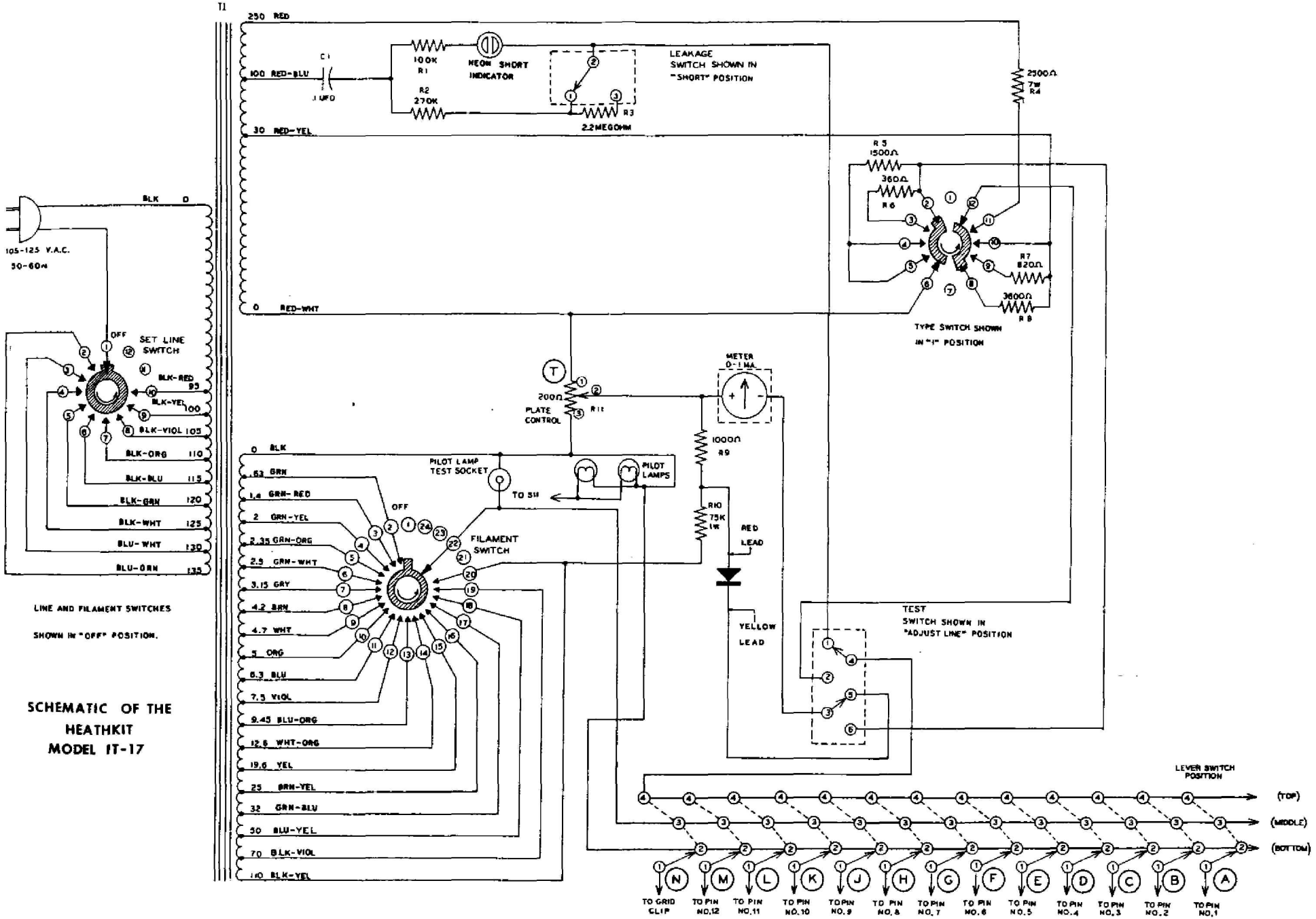
NEW TUBES

We annually revise the Tube Checker roll chart in order to keep abreast of new tube releases. However, because of the great quantity of new tubes being released by manufacturers, a customer will occasionally desire to check a new tube before the test data appears on the roll chart.

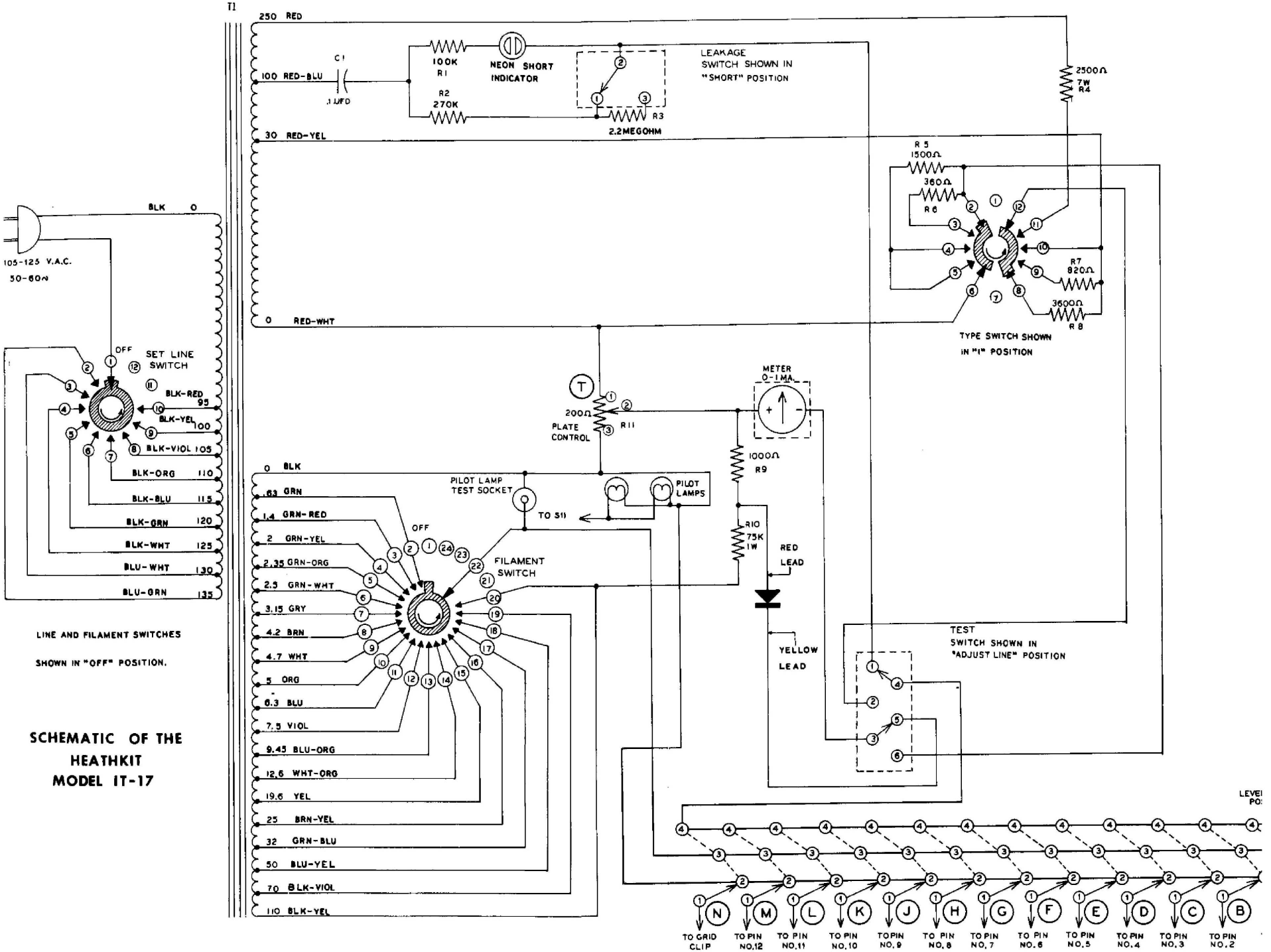
The following instructions indicate how to set up the instrument for obtaining temporary settings so that these new tubes may be checked (provided manufacturer's data is available).

1. Note manufacturer's data carefully concerning the base diagram of the pin connections and filament voltage.
2. Set the Tube Checker TYPE switch as follows:

   Type 1 - for low cathode current tubes (below 4 ma), usually diode types.
   Type 2 - for tube types with cathode current between 3 ma and 15 ma. These are usually filament type tubes with the exception of diodes.
   Type 3 - for tube types with cathode current greater than 8 ma. These are usually indirect-heated cathode types with the exception of diodes.
   Type 4 - for gas control tubes, gaseous rectifiers, and eye or target tubes.
3. Set FILAMENT voltage to the value specified by manufacturer.
4. Set all levers to the CENTER position.
5. Determine the first filament connection from the tube base diagram and leave its connection lever in the CENTER position. Its connection lever corresponds to the letter on the lever - A corresponds to pin 1, B to pin 2, C to pin 3, etc.
6. Determine the second filament connection from the tube base diagram and set its connection lever to the BOTTOM position.
7. Determine from base diagram if the tube has a filament tap. The position of the lever corresponding to the filament tap will depend upon the placement of the tap in respect to the other filament connections. Some filament taps are placed in the center of the filament, as in the 12AU7. For this type filament, the two outer terminals (pins 4 and 5) are connected to one side of the filament supply (levers in CENTER position) and the tap is connected to the other side (lever in BOTTOM position). The FILAMENT control is then set at 1/2 the voltage rating of the entire filament, or (in this case) 12.6/2 = 6.3 volts. When the filament tap is not symmetrically located, as in the 35Z5, the tap must be connected to that end of the filament which is electrically nearer the tap position. For the 35Z5, pins 2 and 3 should be connected to one side of the filament supply and pin 7 to the other. The FILAMENT control is then set to the voltage closest to that recommended by the tube manufacturer, in this case 32 volts.
8. If the tube has more than one section (duodiodes, duo-triodes, etc.) make a separate test for each section. For the section being tested, follow the instructions below. For the section not being tested, move all corresponding connection levers to the bottom position. If the tube has only one section, follow the instructions below.
9. Move the connection lever corresponding to the cathode to the BOTTOM position.
10. Move all other elements of the section being tested (screens, suppressors, grids, etc.) to the TOP position.
11. Plug the tube into the correct socket.
12. Plug the line cord into the power supply and turn the instrument on.
13. Adjust the SET LINE control until the meter pointer falls in the LINE TEST block.
14. Hold the ADJUST LINE SHORT-TEST switch in the TEST position and adjust the PLATE control to bring the pointer to the middle of the GOOD scale. (If possible, make this adjustment for at least three new tubes of the same type and select the average setting.)



SCHEMATIC OF THE HEATHKIT MODEL IT-17



SCHEMATIC OF THE HEATHKIT MODEL IT-17

Heath #597-1442-01

TUBE DATA

FOR

HEATH

IT-17 IT-21 IT-3117 TUBE TESTERS

IMPORTANT NOTES

* Special short test for tubes with internal connections. A good tube will not show short when the levers shown in parenthesis ( ) are moved simultaneously. If moved individually it will show short.

Be sure to set filament selector switch to .63 volts when checking for continuity or short tests.

Tubes followed by suffixes such as G, GT, Y, W, A, B, etc., in general can be tested by the same setup listed for the tubes without a suffix.

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
00A	2	5	30	BC	**D**
01A	2	5	45	BC	**D**
0A2	4	Off	40	**AE**	**BDG**
Good tube reads above 10.					
0A3	4	Off	30	E	**BCG**
Good tube reads above 10.					
0A4	4	Off	40	G	BE
	4	Off	44	E	BG
0B2	4	Off	95	**AE**	**BDG**
Good tube reads above 10.					
0B3	4	Off	30	E	**BCG**
Good tube reads above 10.					
0C2	4	Off	40	**AE**	**BDG**
Tube normally shows leakage.					
Good tube reads above 10.					
0C3	4	Off	30	E	**BCG**
Good tube reads above 10.					
0D3	4	Off	30	E	**BCG**
Good tube reads above 10.					
0G3	4	Off	32	**ACEF**	**BDG**
Good tube reads above 10.					
0Y4	4	Off	22	E	CGH
0Z4	4	Off	22	E	CH
	4	Off	22	C	EH
1A3	1	1.4	75	**BF**	**CG**
1A4	1	2	28	BCN	**D**
1A5	2	1.4	50	CDE	**G**
1A6	2	2	50	CD	**F**
	1	2	95	BEN	**F**
1A7	1	1.4	31	EF	**G**
	1	1.4	95	CDN	**G**
1AB4	1	1.4	23	BCF	**AE**
1AB5	1	1.4	25	BCF	**GH**
1AB6	1	1.4	25	BCDEF	**G**
No open element test on B, E & F.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1AD2	4	1.4	60	N	HM
No short test. Good tube reads above 20					
Tube damaged if H or M is moved.					
1AE4	1	1.4	23	BCF	**AE**
1AF4	1	1.4	26	BCF	**AE**
1AF5	1	1.4	75	DEF	**A**
1AH5	1	1.4	32	DEF	**CG**
	1	1.4	53	C	**G**
1AJ4	1	1.4	24	BCF	**G**
No open element test on B.					
1AU2*	4	1.4	100	(AJ)	**E**
1AX2	4	1.4	95	N	**BEH**
Good tube reads above 25.					
1AY2	4	1.4	58	N	**G**
Insert into pins 2 & 7 of 9 pin min.					
1B3	1	1.4	98	N	**ACDEFGH**
Use G & N only for element test.					
Good tube reads above 26.					
1B4	1	2	27	BCN	**D**
1B4P	2	2	35	BCN	**D**
1B5(25S)	1	2	31	BE	**F**
	1	2	40	D	**F**
	1	2	40	C	**F**
1B7	1	1.4	26	EF	**G**
	1	1.4	95	CDN	**G**
1B8	2	1.4	32	CDE	**G**
	2	1.4	60	FN	**G**
	1	1.4	95	H	**G**
1BC2	4	1.4	70	N	BEH
Tube damaged if BE or H is moved.					
1BG2	1	1.4	32	N	**B**
Insert 2 base leads into pins 1 & 2 of 9 pin min. skt.					
Use plate cap on single lead.					
Good tube reads above 20.					
1BK2	4	1.4	52	N	BEH
No short test. Good tube reads above 30.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1BQ2	4	1.4	86	N	BEH
Tube damaged if BE or H is moved.					
1BX2	4	1.4	67	N	ADFJ
No short test.					
1BY2	4	1.4	60	N	HM
No short test. Good tube reads above 20.					
Tube damaged if H or M is moved.					
1C3	1	1.4	25	BCDEF	**G**
No open element test on BE & F.					
1C5	2	1.4	37	CDE	**G**
1C6	2	2	42	CD	**F**
	1	2	68	BEN	**F**
1C7	2	2	41	EF	**G**
	1	2	56	CDN	**G**
1C21	4	Off	45	E	BG
1D5	2	2	39	CDN	**G**
1D5GP	2	2	33	CDN	**G**
1D7	1	2	31	EF	**G**
	1	2	95	CDN	**G**
1D8	2	1.4	48	FN	**G**
	2	1.4	37	CDE	**G**
	1	1.4	95	G	**H**
1D13*	1	1.4	75	(BF)	**CG**
1DG3	4	1.4	80	N	CE
Good tube reads above 30. No short test.					
1DK1	1	1.4	70	N	**B**
Insert 2 base leads into pins 1 & 2 of 9 pin min. skt.					
Use plate cap on single lead.					
Good tube reads above 20.					
1DK29	1	1.4	32	N	**B**
Insert 2 base leads into pins 1 & 2 of 9 pin min. skt.					
Use plate cap on single lead.					
Good tube reads above 20.					
1DN5	1	1.4	52	D	**G**
	1	1.4	27	BCF	**G**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1E3	3	1.4	30	AH	CE
1E4	2	1.4	45	CE	**G**
1E5	1	2	35	CDN	**G**
1E7	2	2	30	CDH	**G**
	2	2	30	EFH	**G**
1F1	1	1.4	24	BCF	**G**
No open element test on B.					
1F2	2	1.4	37	BCF	**AE**
1F3	2	1.4	35	BCF	**G**
1F4	3	2	47	BCD	**E**
1F5	2	2	36	CDE	**G**
1F6	1	2	37	BCN	**F**
	1	2	95	D	**F**
	1	2	95	E	**F**
1F7 (GV)	1	2	35	CFN	**G**
	1	2	95	E	**G**
	1	2	95	D	**G**
1FD1	1	1.4	32	DEF	CG
	1	1.4	53	C	**G**
1FD9	1	1.4	25	DEF	**G**
	1	1.4	55	C	**G**
1G3	1	1.4	100	N	**ACDEFGH**
Use G & N only for element test.					
Good tube reads above 10.					
1G4	1	1.4	30	CE	**G**
1G5	2	2	39	CDE	**G**
1G6	1	1.4	35	CD	**G**
	1	1.4	35	EF	**G**
1H2	4	1.4	84	N	**ADFJ**
1H4	2	2	41	CE	**G**
1H5	1	1.4	33	CN	**G**
	1	1.4	40	E	**G**
1H6	1	2	30	CF	**G**
	1	2	40	E	**G**
	1	2	40	D	**G**
1H35	1	1.4	25	BCDEF	**G**
No open element test on BE & F.					
1J3/1K3	1	1.4	100	N	ACDEFGH
Good tube reads above 10.					
Tube damaged if ACDEFGH is moved.					
1J5	2	2	38	CDE	**G**
1J6	2	2	39	CD	**G**
	2	2	39	EF	**G**
1L4	2	1.4	37	BCF	**AE**
1L6	1	1.4	34	CD	**G**
	1	1.4	37	BEF	**G**
Good tube reads above 40 on test 2.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1LA4	2	1.4	40	BCF	**H**
1LA6	1	1.4	30	CD	**H**
	1	1.4	95	BEF	**H**
Good tube reads above 40 on test 2.					
1LB4	2	1.4	40	BCF	**H**
1LB6	1	1.4	32	BCDEFG	**H**
1LC5	1	1.4	32	BCDF	**EH**
1LC6	1	1.4	32	CD	**H**
	1	1.4	80	BEF	**H**
1LD5	1	1.4	32	BCF	**H**
	1	1.4	95	D	**H**
Good tube reads above 20 on test 2.					
1LE3	2	1.4	37	BF	**H**
1LG5	2	1.4	35	BCF	DEH
1LH4	1	1.4	26	BF	**H**
	1	1.4	44	D	**H**
1LN5	2	1.4	40	BCDF	**EH**
1N2	4	1.4	75	N	**GH**
1N5	1	1.4	27	CDN	**G**
1N6	2	1.4	38	CDE	**G**
	1	1.4	95	F	**G**
Good tube reads above 20 on test 2.					
1P1	1	1.4	23	BCF	**E**
1P5	1	1.4	31	CDN	**G**
1P10	2	1.4	35	BCDF	**AG**
1P11	1	1.4	23	BCF	**E**
1Q5	2	1.4	33	CDE	**G**
1R4	1	1.4	57	D	GH
Good tube reads above 10.					
1R5	1	1.4	21	D	**AE**
	1	1.4	95	BCF	**AE**
1RK23	1	1.4	90	N	ADFJ
Tube damaged if ADF or J is moved.					
Good tube reads above 35.					
1RK41	4	1.4	52	N	BEH
No short test. Good tube reads above 30.					
1S2A	1	1.4	90	N	**ADFJ**
Good tube reads above 35.					
1S4	2	1.4	30	BCDF	**AE**
1S5	1	1.4	25	DEF	**G**
	1	1.4	55	C	**G**
1SA6	2	1.4	30	CDFH	**G**
1SB6	1	1.4	36	CDH	**G**
	1	1.4	90	E	**G**
1T4	2	1.4	35	BCF	**G**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1T5	2	1.4	40	CDE	**G**
1U4	2	1.4	30	BCF	**AE**
1U5	2	1.4	40	BCF	**A**
	1	1.4	66	D	**A**
1U6	1	1.4	34	CD	BEFG
	1	1.4	40	BEF	CDG
Good tube reads above 30 on test 2..					
1V	3	6.3	24	B	**CD**
1V2*	1	.63	76	(AHJ)	**E**
Good tube reads above 20. H may not show short.					
1X2	4	1.4	67	N	**ADFJ**
	4	1.4	67	N	**BEH**
1Z2	4	1.4	85	N	**BEG**
2A3	3	2.5	28	BC	**D**
2A4	3	2.5	25	E	**G**
	3	2.5	25	C	EG
No short test.					
2A5	3	2.5	36	BCD	**EF**
2A6	3	2.5	26	BN	**EF**
	1	2.5	40	C	**EF**
	1	2.5	40	D	**EF**
2A7	2	2.5	32	E	**FG**
	2	2.5	64	BCDN	**FG**
2AF4*	2	2.35	21	(AG) (BF)	**DE**
2AH2	4	2.5	76	N	**ABEFGHL**
2AS2	Due to varying arrangements of internal connections, this tube cannot be tested.				
2AV2*	1	1.4	100	(AJ)	**E**
Good tube reads above 35.					
2AZ2	4	2	63	N	**ADFJ**
2B3	2	2	40	N	**B**
Good tube reads above 10.					
2B4	3	2.5	24	BC	**DE**
2B6	2	2.5	95	B	**FG**
	3	2.5	50	CD	**EG**
2B7	3	2.5	47	BCN	**FG**
	1	2.5	40	E	**FG**
	1	2.5	40	D	**FG**
2BA2*	4	2	53	(AJ)	**E**
2BJ2	4	2.35	65	N	ADFJ
Tube damaged if ADFJ or BEH is moved.					
2BN4*	1	2	19	(BG)E	(AF)**D**
2BU2	1	2.5	38	N	HM
Good tube reads above 10.					
Tube damaged if H or M is moved.					
2C21	2	6.3	29	CN	**BG**
	2	6.3	29	DE	**FG**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
2C22	3	6.3	22	N	**GH**
Short top caps together.					
2C26	3	6.3	35	N	**GH**
2C51	2	6.3	23	CD	**BFGHJ**
	2	6.3	23	FG	**BCDHJ**
2C52	2	12.6	26	DE	**FG**
	2	12.6	26	AB	**CG**
2CN3	4	1.4	50	N	CEG
Tube damaged if CE or G is moved.					
2CW4	1	2	18	BD	**HM**
2CY5*	2	2	22	AEF	(BG)**C**
2D21	3	6.3	18	AEFG	**BD**
2DL4*	3	2.5	18	(ACFGJ)H	**BE**
2DS4	1	2	18	BD	**HM**
2DV4*	3	2	19	(AB) (DF)	**GM**
2DZ4*	3	2.35	21	(AG) (BF)	**DE**
2E5	2	2.5	44	BC	**EF**
Eye CL	4	2.5	0	BD	CEF
Eye OP	4	2.5	0	D	BCE**F**
2E22	3	6.3	25	BCDN	**E**
2E24	3	2.5	22	CEN	**BG**
	3	2.5	22	CEN	**BG**
A, D & F should show short when moved to top position.					
2E25	3	6.3	28	DEHN	**B**
2E26*	3	6.3	21	CEN	(ADF)**B**
2E30	3	2.5	26	ABEF	**CD**
2EA5*	2	2.35	22	AEF	(BG)**C**
2EG4	2	2.0	19	BD	**HM**
2ER5*	2	2	20	BEF	(AG)**D**
2EV5*	2	2.5	22	AEF	(BG)**D**
2FH5*	2	2.35	21	BE	(AG)**D**
2FQ5	3	2.5	20	BE	AG**D**
Tube damaged if A or G is moved.					
2FS5*	3	2.5	20	AF	(BG)DE
2FV6	2	2.5	20	AEF	**DG**
No open element test on E.					
2G5	2	2.5	44	BC	**EF**
Eye CL	4	2.5	0	BD	CEF
Eye OP	4	2.5	0	D	BCE**F**
2GK5	3	2.35	20	BE	**ADG**
Tube damaged if A or G is moved.					
2GU5*	1	2.5	19	A	(BG)**D**
	1	2.5	29	EF	(BG)**D**
2GW5*	2	2.5	20	A(BF)	**DE**
2HA5	3	2	18	AE	BDG
Tube damaged if B or G is moved.					
2HK5	3	2	18	AE	BDG
Tube damaged if B or G is moved.					
2HM5	3	2	18	AE	BDG
Tube damaged if B or G is moved.					
2HQ5	3	2	18	AE	BDG
Tube damaged if B or G is moved.					
2S/4S(G-2)					
	1	2.5	45	B	DE
2T4*	2	2.35	22	(AG) (BF)	**DE**
2V2	4	1.4	97	N	**BDFGH**
2V3	1	2.5	96	N	**G**
Good tube reads above 20.					
2W3	2	2.5	36	D	**H**
2X2 (879)	4	2.5	52	N	**D**
2X2A	4	2.5	44	N	**D**
Good tube reads above 40.					
2X3	3	2.5	43	D	**H**
2Y2	1	2.5	95	N	**D**
Good tube reads above 40.					
2Z2 (G84)	3	2.5	56	B	**D**
3A2	4	3.15	54	N	**ADFJ**
3A3	4	3.15	56	N	**B**
Good tube reads above 25.					
3A4	2	1.4	26	BCDF	**AG**
3A5	2	1.4	30	BC	**D**
	2	1.4	30	EF	**D**
3A8	1	1.4	36	CDN	**BG**
	1	1.4	36	EF	**BG**
	1	1.4	45	H	**BG**
3AF4*	2	3.15	21	(AG) (BF)	**DE**
3AL5	1	3.15	20	B	**DE**
	1	3.15	20	G	**AD**
3AT2	4	3.15	61	N	**ABEFJ**
3AU6	2	3.15	22	ABEF	**DG**
3AV6	1	3.15	21	AG	**BD**
	1	3.15	43	E	**BD**
	1	3.15	43	F	**BD**
3AW2	4	2.5	52	N	ABEFJ
Tube damaged if ABEF or J is moved.					
3AW3	2	3.15	68	N	**CGH**
Good tube reads above 10.					
3B2	1	3.15	50	N	**ACDEG**
Good tube reads above 10.					
3B4	3	1.4	47	ACG	**E**
3B5	2	1.4	35	CDE	**BG**
3B7	1	1.4	33	BC	**AH**
	1	1.4	33	FG	**AH**
3BA6	2	3.15	23	ABEF	**DG**
3BC5*	2	3.15	20	AEF	(BG)**C**
No open element test on E.					
3BE6	2	3.15	21	A	**BD**
	2	3.15	33	EFG	**BD**
3BH2	4	3.15	60	N	AEJ
Tube damaged if AE or J is moved.					
3BL2	1	3.15	38	N	HM
Good tube reads above 35.					
Tube damaged if H or M is moved.					
3BM2	4	3.15	40	N	**HM**
Tube damaged if H or M is moved.					
3BN2	4	3.15	100	N	ABEFJ
Tube damaged if ABEF or J is moved.					
3BN4*	1	3.15	19	(BG)E	(AF)**D**
3BN6	1	3.15	35	BEFG	**AC**
Good tube reads above 20.					
3BS2	1	3.15	40	N	HM
Tube damaged if H or M is moved.					
Good tube reads above 25.					
3BT2	1	3.15	38	N	HM
Tube damaged if H or M is moved.					
Good tube reads above 20.					
3BU8	1	3.15	22	BCFG	**AE**
	1	3.15	22	BGHJ	**AE**
3BW2	1	3.15	38	N	HM
Tube damaged if H or M is moved.					
Good tube reads above 20.					
3BY6	2	3.15	25	AF	**BD**
	1	3.15	30	EG	**BD**
3BZ6	2	3.15	20	AEFG	**BC**
No open element test of F & G.					
3C2	1	1.4	60	N	**DEFGH**
3C4	1	1.4	23	BCF	**E**
3C5	2	1.4	34	CDE	**BG**
3C6	2	1.4	40	CD	**AH**
	2	1.4	40	EF	**AH**
3CA3	4	3.15	75	N	**G**
3CB6	2	3.15	21	AEFG	**BC**
3CE5*	2	3.15	21	AEF	(BG)**D**
No open element test on E.					
3CF6	1	3.15	19	AEFG	**BD**
No open element test on E & G.					
3CN3	4	3.15	50	N	ACEG
Tube damaged if ACE or G is moved.					
3CS6	1	3.15	21	AF	**BC**
	1	3.15	40	EG	**BC**
3CU3	1	3.15	20	N	**B**
Good tube reads above 20.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
3CV3	4	3.15	56	N	**B**
Good tube reads above 30.					
3CX3	4	3.15	40	N	CE
Good tube reads above 35.					
Tube damaged if C or E is moved.					
3CY3	4	3.15	54	N	**B**
Good tube reads above 35.					
3CY5*	3	3.15	22	AEF	(BG)**C**
3CZ3	4	3.15	44	N	**B**
Good tube reads above 35.					
3D6	2	1.4	30	BCF	**AH**
3DA3	4	3.15	40	N	CE
Good tube reads above 35.					
Tube damaged if C or E is moved.					
3DB3	4	3.15	54	N	**B**
Good tube reads above 35.					
3DC3	1	3.15	44	N	**B**
Good tube reads above 25.					
3DF3	4	3.15	40	N	**C**
Good tube reads above 30. No short test.					
3DG4	4	3.15	18	E	**C**
	4	3.15	18	G	**C**
3DH3	4	3.15	40	N	CE
Good tube reads above 35.					
Tube damaged if C or E is moved.					
3DJ3	4	3.15	42	N	**B**
Good tube reads above 20.					
3DK6	3	3.15	22	AEF	**BCG**
3DR3	4	3.15	40	N	CE
Good tube reads above 35. No short test.					
3DS3	4	3.15	40	N	CE
Good tube reads above 35. No short test.					
3DT6	1	3.15	20	AEFG	**BD**
3DZ4*	3	3.15	21	(AG) (BF)	**DE**
3E5	2	1.4	31	BCF	**AG**
3E6	2	1.4	30	BCDF	**AH**
3EA5*	2	3.15	22	AEF	(BG)**C**
3EH7*	2	3.15	21	BGHJ	(AC)**E**
3EJ7*	2	3.15	21	BGHJ	(AC)**E**
3ER5*	2	2.5	20	BEF	(AG)**D**
3EV5*	2	2.5	23	AEF	(BG)**D**
3FH5	2	3.15	21	BE	**ADG**
Tube damaged if A or G is moved.					
3FQ5	3	3.15	20	BE	**AGD**
Tube damaged if A or G is moved.					
3FS5*	3	3.15	19	AF	(BG)**DE**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
3GK5	3	3.15	18	BE	**ADG**
Tube damaged if A or G is moved.					
3GS8	2	3.15	20	BCFG	**AE**
	2	3.15	20	BGHJ	**AE**
3GU5	1	3.15	19	A	**BDG**
	1	3.15	29	EF	**BDG**
Tube damaged if B or G is moved.					
3GW5*	2	3.15	20	A(BF)	**DE**
3HA5	3	2.5	18	AE	**BDG**
Tube damaged if B or G is moved.					
3HK5	3	3.15	18	AE	**BDG**
Tube damaged if B or G is moved.					
3HM5	3	3.15	18	AE	**BDG**
Tube damaged if B or G is moved.					
3HM6	1	3.15	34	GJ	**ACE**
	3	3.15	19	BH	**ACE**
Tube damaged if A or C is moved.					
3HQ5	3	2.5	18	AE	**BDG**
Tube damaged if B or G is moved.					
3HS8	2	3.15	24	BHJ	**AE**
	2	3.15	21	CFG	**AE**
3HT6	1	3.15	34	GJ	**ACE**
	3	3.15	19	BH	**ACE**
Tube damaged if A or C is moved.					
3JC6	2	3.15	19	BGHJ	**ACE**
Tube damaged if A or C is moved.					
3KF8	2	3.15	20	BGHJ	**AE**
	2	3.15	20	BCFG	**AE**
3KT6	3	3.15	19	BGHJ	**ACE**
Tube damaged if A or C is moved.					
3LE4	2	1.4	34	BCF	**AH**
3LF4	2	1.4	30	BCF	**AH**
3MP26	2	3.15	21	AEF	**BC**
3MR24	3	3.15	20	AEF	**BD**
3MV7	2	3.15	20	AEF	**BD**
3Q4	2	1.4	33	BCDF	**AG**
3Q5	3	1.4	35	CDE	**BG**
3S4	2	1.4	35	BCDF	**AG**
3V4	2	1.4	28	BCF	**AG**
4A6	2	2	35	CD	**H**
	3	2	46	EF	**H**
4AU6	2	4.2	22	ABEF	**DG**
4AV6	1	4.2	21	AG	**BD**
	1	4.2	43	E	**BD**
	1	4.2	43	F	**BD**
4BA6	2	4.2	23	ABEF	**DG**
4BC5*	1	4.2	18	AEF	(BG)**C**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
4BC8	2	4.2	22	AB	**CD**
	2	4.2	22	FG	**DH**
4BE6	2	4.2	20	A	**BD**
	2	4.2	20	EFG	**BD**
4BF5*	3	4.2	18	(AG)EF	**BC**
4BL8	2	4.7	22	AJ	**EH**
	2	4.7	20	BC	**EFG**
4BN6	1	4.2	36	BEFG	**AC**
Good tube reads above 23.					
4BQ7	2	4.2	21	AB	**CD**
	2	4.2	21	FG	**DH**
4BS8	2	4.2	22	AB	**CD**
	2	4.2	22	FG	**DH**
4BU8	1	4.2	22	BCFG	**AE**
	1	4.2	22	BGHJ	**AE**
4BX8	1	5	19	AB	**CE**
	1	5	19	FG	**EH**
4BZ6	1	4.2	18	AEFG	**BC**
No open element test of E & G.					
4BZ7	2	4.2	21	FG	**DH**
	2	4.2	20	AB	**CD**
4BZ8	3	4.2	16	FG	**EH**
	3	4.2	16	AB	**CE**
4CB6	2	4.2	22	AEFG	**BC**
No open element test on E.					
4CE5*	2	4.2	20	AEF	(BG)**D**
No open element test on E.					
4CM4*	3	4.2	19	(AJ)(BFH)	**CEG**
Tube damaged if C or G is moved.					
4CS6	1	4.2	20	AF	**BC**
	1	4.2	28	EG	**BC**
4CY5*	3	4.2	24	AEF	(BG)**C**
4DE6	2	4.2	21	AEFG	**BC**
No open element test on E & G.					
4DK6	3	4.2	22	AEF	**BCG**
4DL4*	3	4.2	18	(ACFGJ)H	**BE**
4DT6	1	4.2	20	AEFG	**BD**
4EH7*	2	4.2	21	BGHJ	(AC)**E**
4EJ7*	2	4.2	21	BGHJ	(AC)**E**
4ES8	2	4.2	20	AB	**CE**
	2	4.2	20	FG	**EH**
4EW6	2	4.2	20	AEF	**BCG**
No open element test on E & G.					
4GJ7	2	4.2	19	HJ	**ACE**
	2	4.2	18	BFG	**ACE**
Tube damaged if A or C is moved.					
4GK5	3	4.2	19	BE	**ADG**
Tube damaged if A or G is moved.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
4GM6	2	4.2	20	AEF	BDG
4GS7	3	4.2	19	FGJ	CEH
	3	4.2	21	AB	CEH
Tube damaged if C or H is moved.					
4GS8	2	4.2	20	BCFG	AE
	2	4.2	20	BGHJ	AE
4GW5*	2	4.2	20	A(BF)	DE
4GX7	2	4.7	20	BFG	ACE
	3	4.7	21	HJ	ACE
Tube damaged if A or C is moved.					
4GZ5*	3	4.2	19	(BE)F	ADG
4HA5	3	4.2	18	AE	BDG
Tube damaged if B or G is moved.					
4HA7	1	4.2	20	BL	CM
	2	4.2	23	JK	DM
4HC7*	1	4.2	20	BL	CM
	2	4.2	23	(GK)J	DM
4HK5	3	4.2	18	AE	BDG
Tube damaged if B or G is moved.					
4HM5	3	4.2	18	AE	BDG
Tube damaged if B or G is moved.					
4HM6	3	4.2	18	BH	ACE
	1	4.2	32	GJ	ACE
Tube damaged if A or C is moved.					
4HR8*	2	4.2	21	A(BG)FHJ	CE
4HQ5	3	4.2	18	AE	BDG
Tube damaged if B or G is moved.					
4HS8	2	4.2	24	BHJ	AE
	2	4.2	21	CFG	AE
4HT6	3	4.2	19	BH	ACE
	1	4.2	34	GJ	ACE
Tube damaged if A or C is moved.					
4JC6	2	4.7	19	BGHJ	ACE
Tube damaged if A or C is moved.					
4JD6	3	4.7	19	BH	ACEG
Tube damaged if A or C is moved.					
4JH6	3	4.2	20	AFEG	BD
4JK6	3	4.7	18	AF	BD
	1	4.7	33	EG	BD
4JL6	3	4.7	18	AF	BD
	1	4.7	32	EG	BD
4JW8	2	4.7	20	BCF	EG
	2	4.7	21	AJ	EH
4KE8	2	4.2	18	BCF	EG
	2	4.2	18	AJ	EH
4KF8	2	4.2	20	BGHJ	AE
	2	4.2	20	BCFG	AE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
4KN8	3	4.7	19	AB	CE
	3	4.7	19	FG	HE
4KT6	3	4.7	19	BGHJ	ACE
Tube damaged if A or C is moved.					
4LJ8	2	5	18	FGJ	CEH
	2	5	18	AB	CEH
Tube damaged if C or H is moved.					
4LU6	3	4.2	20	AEFG	BD
4MK8	2	4.2	20	BCFG	AE
	2	4.2	20	BGHJ	AE
4MP12	3	4.7	22	AEF	BD
4MP26	2	4.2	21	AEF	BC
4RHH2	2	4.2	21	AB	CD
	2	4.2	21	FG	DH
4RHH8	3	4.7	19	AB	CE
	3	4.7	19	FG	EH
4RHH15	3	4.2	22	FG	EH
	3	4.2	22	AB	CE
5A6	3	2.5	24	ACFGH	J
5AM8	1	4.7	18	BCFJ	AD
No open element test on F & J.					
	1	4.7	18	H	DG
5AN8	2	4.7	22	FGH	EJ
No open element test on F.					
	2	4.7	23	AB	CE
5AQ4	3	5.0	25	F	H
	3	5.0	25	D	H
5AQ5*	3	4.7	27	(AG)EF	BD
5AR4	3	5	26	D	H
	3	5	26	F	H
5AS4	1	5	23	D	H
	1	5	23	F	H
5AS8	3	4.7	22	ABJ	CD
	2	4.7	24	F	DH
5AT8	2	4.7	21	AB	CE
	2	4.7	20	FGHJ	CE
No open element test on F & H.					
5AU4	3	5	30	F	H
	3	5	30	D	H
5AV8	2	4.7	22	FHJ	EG
No open element test on F.					
	2	4.7	23	BC	AE
5AW4	4	5	18	D	H
	4	5	19	F	H
5AX4	3	5	40	D	H
	3	5	40	F	H
5AZ4	3	5	43	F	H
	3	5	43	D	H

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
5B8	2	4.7	21	BC	AE
	2	4.7	21	FHJ	ABCEG
No open element test on J.					
5BC3*	3	5	26	(EF)	BC
	3	5	26	(HJ)	BC
Tube damaged if B or C is moved.					
5BE8	2	4.7	20	AB	CE
	2	4.7	20	FGJ	CEH
5BK7	2	4.7	21	FG	EH
	2	4.7	21	AB	CE
5BQ7	2	4.7	22	AB	CD
	2	4.7	22	FG	DH
5BR8	2	4.7	20	AB	CE
	2	4.7	20	FGJ	EH
No open element test on F.					
5BS8	2	4.7	22	AB	CD
	2	4.7	22	FG	DH
5BT8	3	4.7	22	FGH	DJ
	1	4.7	26	A	CD
	1	4.7	26	B	CD
5BW8	1	4.7	20	A	BE
	1	4.7	20	C	BE
	2	4.7	21	FHJ	EG
No open element test on J.					
5BZ7	2	4.7	20	AB	CD
	2	4.7	20	FG	DH
5CG8	1	4.7	20	AB	CEH
	1	4.7	19	FGJ	CEH
No element or short test on C & H.					
5CL8	2	4.7	22	AB	CD
	2	4.7	22	FGJ	DH
5CM6*	3	4.7	21	A(CF)J	DG
5CM8	2	4.7	24	AJ	DH
	3	4.7	22	BFG	CD
5CQ8	1	4.7	19	AJ	EH
	1	4.7	19	BCF	EG
5CR8	2	5	20	AJ	EH
	2	5	19	BFG	CE
5CZ5	1	4.7	21	ACFJ	EG
5DH8	1	5	19	AB	CD
	2	5	20	FGJ	DH
5DJ4*	3	5	30	(CD)	GH
	3	5	30	(EF)	AB
Tube damaged if GH or AB is moved.					
5EA8	2	4.7	21	AJ	EH
	2	4.7	21	BCF	EG
5EH8*	2	4.7	21	GHJ	(AF)E
	2	4.7	21	BC	(AF)E
5EU8	2	4.7	21	AGJ	EH
	2	4.7	21	BC	EF

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
5EW6	2	5	19	AF	BD
	1	5	41	EG	BD
5FG7*	2	4.7	19	AB	(CH)E
	3	4.7	19	GJ	(CH)EF
5FV8	2	4.7	21	FGJ	EH
	2	4.7	21	AB	CE
5GH8	2	4.7	17	BCF	EG
	2	4.7	17	AJ	EH
5FJ7	2	5	19	HJ	ACE
	2	5	18	BFG	ACE
Tube damaged if A or C is moved.					
5GM6	2	5	19	AF	BD
	1	5	37	EG	BD
5GS7	3	5	19	FGJ	CEH
	3	5	21	AB	CEH
Tube damaged if C or H is moved.					
5GX6	1	5	19	A	BD
	1	5	21	EFG	BD
5GX7*	2	5	20	BG	(AC)EF
	3	5	21	HJ	(AC)E
5HA7	1	5	20	BL	CM
	2	5	23	JK	DM
5HB7	2	5	20	HJ	ACE
	3	5	20	BFG	ACE
Tube damaged if A or C is moved.					
5HC7*	1	5	20	BL	CM
	2	5	23	(GK)J	DM
5HG8*	3	5	19	BJ	(AC)EH
	3	5	23	FG	(AC)E
5HZ6	2	5	20	AEFG	BD
5J6	1	4.7	20	AF	DG
	1	4.7	20	BE	DG
5JK6	3	5	18	AF	BD
	1	5	33	EG	BD
5JL6	3	5	18	AF	BD
	1	5	32	EG	BD
5JW8	2	5	20	BCF	EG
	2	5	21	AJ	EH
5KD8	2	5	20	AJ	EH
	2	5	20	BC	EFG
5KE8	2	5	18	BCF	EG
	2	5	18	AJ	EH
5KZ8	3	5	19	AJ	EH
	3	5	20	BG	CEF
5LJ8*	3	5	22	AB	(CH)E
	3	5	19	GJ	(CH)EF
5MB8	3	5	21	AB	CE
	3	5	19	GJ	EFH
5MF8*	3	5.0	19	D(FG)H	JM
	1	5.0	19	BK	LM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
5MHH3	2	5	22	AF	CG
	2	5	22	BE	CG
5MK9	3	5	28	E	C
5MQ8	2	5	20	BCF	EG
	2	5	21	AJ	EG
5R4	3	5	46	D	H
	3	5	46	F	H
5R-DDH1	1	5	22	A	BE
	1	5	24	F	CE
	1	5	20	GH	EJ
5RHP1	2	4.7	22	AJ	EH
	2	4.7	20	BC	EFG
5RHR1	2	5	20	AJ	EH
	2	5	20	BCF	EG
No open element test on F.					
5RK16	3	5	24	A	D
	3	5	24	H	D
5T4	3	5	26	F	H
	3	5	26	D	H
5T8	1	4.7	20	A	CEG
	1	4.7	20	B	CEG
	1	4.7	20	F	CEG
	3	4.7	36	HJ	CEG
5U4	3	5	35	F	H
	3	5	35	D	H
5U8	2	4.7	22	AJ	EH
	2	4.7	22	BCF	EG
No open element test on F.					
5V3	3	5	30	D	B
	3	5	30	F	B
5V4	3	5	25	F	H
	3	5	25	D	H
5V6	3	4.7	29	CDE	AGH
5W4	3	5	48	F	H
	3	5	48	D	H
5X3	3	5	43	B	D
	3	5	43	C	D
5X4	3	5	33	E	H
	3	5	33	C	H
5X8	2	4.7	22	BC	EF
	2	4.7	21	GHJ	AEF
5Y3	3	5	50	D	H
	3	5	50	F	H
5Y4	3	5	57	E	G
	3	5	57	C	G
5Z3	3	5	35	C	D
	3	5	35	B	D
5Z4	3	5	27	F	B
	3	5	27	D	B
6A3	3	6.3	28	BC	D

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6A4/LA	3	6.3	36	BCD	E
6A5	2	2.5	28	CE	BG
6A6	3	6.3	36	BC	DG
	3	6.3	36	EF	DG
6A7	2	6.3	30	DE	FG
	2	6.3	38	BCN	FG
6A8	2	6.3	31	EF	GH
	2	6.3	40	CDN	GH
6AB4	2	6.3	22	AF	CG
6AB5	2	6.3	36	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6AB6	3	6.3	62	DE	CGH
	3	6.3	44	CE	DGH
6AB7	3	6.3	23	DFH	CEG
6AB7	1	6.3	20	FGHJ	CE
No open element test on F & G.					
	1	6.3	23	AB	CE
6AC5	3	6.3	34	CE	GH
6AC6	2	6.3	26	CDE	GH
6AC7	3	6.3	21	DFH	CEG
No open element test on C & H.					
6AC9	1	6.3	19	B	CM
	1	6.3	19	BC	DM
	3	6.3	19	GJK	HLM
6AC10	3	6.3	20	JK	DM
	3	6.3	20	EG	FM
	3	6.3	20	BL	CM
6AD6	4	6.3	95	CDE	GH
Good tube reads above 26.					
Eye CL	4	6.3	0	CDE	GH
Eye OP	4	6.3	0	E	CDGH
6AD7	3	6.3	33	CDE	GH
	2	6.3	51	AF	GH
6AD10	3	6.3	22	HKL	JM
	2	6.3	18	CFG	BEM
6AE5	3	6.3	29	CE	GH
6AE6	2	6.3	33	CE	GH
	2	6.3	33	DE	GH
6AE7	2	6.3	26	CD	EG
	2	6.3	27	CF	GH
6AF3*	4	6.3	18	(BJ)	EN
6AF4*	2	6.3	21	(AG)(BF)	DE
6AF5	2	6.3	24	CE	GH
6AF6	4	6.3	95	CDE	GH
Good tube reads above 26.					
Eye CL	4	6.3	0	CDE	GH
Eye OP	4	6.3	0	E	CDGH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6AF11	2	6.3	21	CD	GM
	2	6.3	21	FH	EM
	3	6.3	20	KL	BJM
6AG5*	3	6.3	20	AEF	(BG)C
No open element test on E.					
6AG7	3	6.3	17	DFH	EG
6AG9	2	6.3	19	BDKL	JM
	2	6.3	20	EG	FM
6AG11	1	6.3	20	C	BM
	1	6.3	20	K	LM
	2	6.3	20	EF	DM
	2	6.3	20	GH	JM
6AH4	2	6.3	20	AE	GH
6AH6	2	6.3	22	AEF	BCG
6AH7	3	6.3	30	AC	BG
	3	6.3	30	EF	DG
6AH9*	3	6.3	19	(EF)HJL	GM
	3	6.3	28	BC	DM
6AJ4*	2	6.3	19	(ACDFJ)E	BH
6AJ5*	2	6.3	23	AEF	(BG)C
6AJ8	2	6.3	22	ABFG	CE
	2	6.3	23	HJ	CE
6AK5*	2	6.3	22	AEF	(BG)C
6AK6	3	6.3	30	ABEF	CG
6AK7	3	6.3	17	DFH	EG
6AK8	1	6.3	20	A	DG
	1	6.3	20	B	CD
	1	6.3	21	HJ	DG
	1	6.3	40	F	DG
6AK9	3	6.3	30	BC	GM
	3	6.3	22	KL	GM
	3	6.3	21	EHJ	GM
6AK10	3	6.3	20	JK	DM
	3	6.3	20	EG	FM
	3	6.3	20	BL	CM
6AL3	3	6.3	19	ABCFGHJ	EN
No element test on top levers.					
6AL5	1	6.3	22	B	DE
	1	6.3	22	G	AD
6AL6	3	6.3	24	DEN	GH
6AL7	1	6.3	40	ACDEF	BH
Eye OP	4	6.3	0	C	BDFH
Eye CL	4	6.3	0	C	BH
6AL9	2	6.3	20	BDKL	JM
	3	6.3	20	EG	FM
6AL11	1	6.3	21	CDFG	BM
	3	6.3	20	HKL	JM
6AM4*	1	6.3	18	(ACDFJ)E	BH
6AM5	1	6.3	22	AEG	BD

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6AM8	1	6.3	18	BCFJ	AD
No open element test on F & J.					
	1	6.3	18	H	DG
6AN4*	2	6.3	20	(AG)(BF)	CE
6AN5*	3	6.3	17	AEF	(BG)D
6AN6	1	6.3	23	B	FG
	1	6.3	23	C	FG
	1	6.3	23	D	FG
	1	6.3	23	E	FG
6AN8	2	6.3	22	FGH	EJ
No open element test on F.					
	2	6.3	23	AB	CE
6AQ5*	3	6.3	27	(AG) EF	BD
6AQ6	1	6.3	20	AG	BC
	1	6.3	40	E	BC
	1	6.3	40	F	BC
6AQ7	1	6.3	22	DE	FH
	1	6.3	34	C	BH
	1	6.3	34	A	BH
6AQ8	2	6.3	21	AB	CE
	2	6.3	21	FG	EH
6AR5	3	6.3	30	AEF	BD
6AR6	3	6.3	20	CEG	AH
6AR8	3	6.3	22	*BCFJ*	*EG*
No open element test on B, C & J.					
	3	6.3	22	ACFH	EG
No open element test on A, C & H.					
6AR11	3	6.3	18	CE	BDFM
	3	6.3	18	JK	GHLM
6AS5*	1	6.3	19	(BE) FG	AC
6AS6	2	6.3	25	AEFG	BC
6AS7	3	6.3	16	AB	CH
	3	6.3	16	DE	FH
6AS8	1	6.3	19	ABJ	CEG
	1	6.3	18	F	EH
6AS11	2	6.3	21	CD	GM
	2	6.3	21	FH	EM
	3	6.3	18	KL	BJM
6AT6	1	6.3	20	AG	BC
	1	6.3	35	E	BC
	1	6.3	35	F	BC
6AT7N	3	6.3	20	AB	CE
	3	6.3	20	FG	EH
6AT8	2	6.3	21	AB	CE
	2	6.3	20	FGHJ	CE
No open element test on F & H.					
6AU4	4	6.3	22	E	CH
6AU5	3	6.3	22	AEH	CG
6AU6	2	6.3	22	ABEF	DG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6AU7	2	3.15	25	AB	CDE
	2	3.15	25	FG	DEH
6AU8	2	6.3	21	BC	AD
	2	6.3	21	GHJ	DF
No open element test on J.					
6AV5	2	6.3	25	AEH	BC
6AV6	1	6.3	21	AG	BD
	1	6.3	43	E	BD
	1	6.3	43	F	BD
6AV11	2	6.3	23	BL	CM
	2	6.3	23	EG	FM
	2	6.3	23	JK	DM
6AW8	3	6.3	20	GHJ	DF
	3	6.3	23	BC	AD
6AX3	3	6.3	23	DK	GM
6AX4	3	6.3	22	E	CH
6AX5	3	6.3	32	C	BH
	3	6.3	32	E	BH
6AX6G	1	6.3	19	E	GH
	1	6.3	19	C	DG
6AX7	1	3.15	20	AB	CDE
	1	3.15	20	FG	DEH
6AX8	2	6.3	20	AJ	EH
	2	6.3	20	BCF	EG
No open element test on F.					
6AY3	3	6.3	22	BG	EJ
J may show leakage.					
6AY11	1	6.3	19	GH	JM
	1	6.3	19	EF	DM
	1	6.3	19	K	LM
	1	6.3	19	C	BM
6AZ8	2	6.3	21	HJ	EG
	2	6.3	21	ABF	CE
6B4	3	6.3	28	CE	G
6B5	3	6.3	45	BD	CEF
	3	6.3	63	CD	BEF
6B6	3	6.3	32	CN	GH
	1	6.3	40	D	GH
	1	6.3	40	E	GH
6B7	3	6.3	50	BCN	FG
	1	6.3	40	D	FG
	1	6.3	40	E	FG
6B8	3	6.3	45	CFN	GH
	1	6.3	40	D	GH
	1	6.3	40	E	GH
6B10	1	6.3	20	H	JM
	1	6.3	20	K	JM
	2	6.3	21	CD	BM
	2	6.3	22	EF	GM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6B32	1	6.3	22	B	DE
	1	6.3	22	G	AD
6BA3*	3	6.3	23	(BG)	EJ
6BA6	2	6.3	23	ABEF	DG
6BA7	3	6.3	18	AB	CEGJ
	1	6.3	36	AFGJ	BCE
6AB8	3	6.3	25	BC	AD
	3	6.3	22	GHJ	DF
6BA11	2	6.3	23	BCE	HM
	2	6.3	22	DFG	HM
	2	6.3	22	JL	KM
6BB14*	3	6.3	18	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
6BC4*	1	6.3	20	(AJ)BCGH	EF
6BC5*	2	6.3	22	AEF	(BG)C
6BC7	1	6.3	20	B	AD
	1	6.3	20	H	DJ
	1	6.3	21	F	DG
6BC8	1	6.3	19	FG	DH
	1	6.3	19	AB	CD
6BD4	1	6.3	29	EN	AG
6BD5	3	6.3	18	AEH	CG
6BD6	2	6.3	26	ABEF	DG
6BD7	1	6.3	21	AB	CE
	1	6.3	46	H	CE
	1	6.3	51	F	CE
6BD11	3	6.3	20	KL	BJM
	2	6.3	20	FH	EM
	2	6.3	21	CD	GM
6BE3	3	6.3	20	DK	GM
6BE6	2	6.3	22	A	BD
	2	6.3	26	EFG	BD
6BE7*	1	6.3	20	ABFGJ	(CH)E
No open element test on F.					
	1	6.3	30	FJ	(CH)E
6BE8	2	6.3	20	AB	CE
	2	6.3	20	FGJ	CEH
6BF5	3	6.3	18	AEFG	BC
6BF6	3	6.3	28	AG	BDEF
	1	6.3	38	E	ABDFG
	1	6.3	38	F	ABDEG
6BF8	1	6.3	19	A	EF
	1	6.3	19	B	EF
	1	6.3	19	C	EF
	1	6.3	19	G	EF
	1	6.3	19	H	EF
	1	6.3	19	J	EF
6BF11	1	6.3	20	CEFG	BM
	3	6.3	20	HKL	JM
6BG6	3	6.3	24	EHN	CG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6BH3	3	6.3	22	BG	EJ
6BH6	2	6.3	22	AEFG	BC
6BH8	2	6.3	22	BC	AD
	2	6.3	21	GHJ	DF
No open element test on J.					
6BH11	3	6.3	18	HJK	LM
	3	6.3	18	FG	EM
	3	6.3	18	CD	BM
6BJ3	3	6.3	21	DK	GM
6BJ6	2	6.3	22	AEFG	BD
6BJ7	1	6.3	20	B	AE
	1	6.3	20	F	EG
	1	6.3	20	H	EJ
6BJ8	1	6.3	20	A	BE
	1	6.3	20	F	CE
	3	6.3	25	GH	EJ
6BK4	1	6.3	30	EN	ABCDFH
No open element test on N.					
6BK5	2	6.3	21	ACGH	DF
6BK6	1	6.3	24	AG	BC
	1	6.3	32	E	BC
	1	6.3	36	F	BC
6BK7	2	6.3	21	FG	EH
	2	6.3	21	AB	CE
6BK8	2	6.3	22	AHJ	CE
6BK11	1	6.3	20	BL	CM
	1	6.3	20	EG	FM
	1	6.3	20	JK	DM
6BL4	4	6.3	22	AE	CG
6BL7	3	6.3	22	AB	CG
	3	6.3	22	DE	FG
6BL8	2	6.3	22	AJ	EH
	2	6.3	20	BC	EFG
6BM8	1	6.3	20	AJ	EH
	1	6.3	20	CFG	BE
6BN4*	1	6.3	19	(BG)E	(AF)D
6BN6	1	6.3	36	BEFG	AC
Good tube reads above 23.					
6BN8	1	6.3	20	A	BE
	1	6.3	20	F	CE
	1	6.3	20	GH	EJ
6BN11	3	6.3	18	GJKL	HM
	3	6.3	18	CDEF	BM
6BQ5	3	6.3	22	ABGJ	CD
6BQ6	3	6.3	21	DEN	GH
6BQ7	2	6.3	22	AB	CD
	2	6.3	21	FG	DH
6BR3*	4	6.3	18	(BJ)	EN
6BR5					
Eye CL	4	6.3	0	ABG	D

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
Eye OP	4	6.3	0	AB	D
No open element test on A, B & G.					
6BR7	1	6.3	20	BGHJ	CE
6BR8	2	6.3	20	AB	CE
	2	6.3	20	FGJ	EH
No open element test on F.					
6BS3*	2	6.3	20	(BG)	EJ
6BS8	2	6.3	22	AB	CD
	2	6.3	22	FG	DH
6BT6	1	6.3	21	AG	BC
	1	6.3	30	E	BC
	1	6.3	30	F	BC
6BU8	1	6.3	22	BCFG	AE
	1	6.3	22	BGHJ	AE
6BV8	1	6.3	20	F	EH
	1	6.3	20	J	EG
	2	6.3	22	BC	AE
6BV11	2	6.3	20	GJKL	HM
	2	6.3	20	BCDF	EM
6BW3*	4	6.3	21	(DK)	GM
6BW4	4	6.3	20	G	EJ
	4	6.3	20	A	EJ
6BW6*	3	6.3	26	(AB)GHJ	CE
6BW8	1	6.3	20	A	BD
	1	6.3	20	C	BD
	3	6.3	22	FHJ	DG
6BW11	3	6.3	18	GHJL	KM
	3	6.3	17	CDEF	BM
6BX4	3	6.3	30	F	DG
	3	6.3	30	A	DG
6BX6*	2	6.3	22	BGHJ	(AC)E
6BX7	3	6.3	22	DE	FG
	3	6.3	22	AB	CG
6BY5	3	6.3	23	D	AG
	3	6.3	23	E	GH
6BY6	1	6.3	19	AF	BD
	1	6.3	25	EG	BD
6BY7	1	6.3	22	BGHJ	ACE
No element or short test on A & C.					
6BY8	2	6.3	26	ABGH	EJ
	2	6.3	22	F	CE
6BY11	1	6.3	19	CEFG	BM
	3	6.3	19	HKL	JM
6BZ3*	3	6.3	20	(DK)	GM
6BZ6	1	6.3	18	AEFG	BC
No open element test on E & G.					
6BZ7	2	6.3	21	FG	DH
	2	6.3	20	AB	CD

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6BZ8	3	6.3	16	FG	EH
	3	6.3	16	AB	CE
6C4	2	6.3	25	AEF	DG
6C5	2	6.3	30	CE	GH
6C6	1	6.3	21	BCN	DEF
6C7	1	6.3	21	B	FG
	1	6.3	40	D	FG
	1	6.3	40	E	FG
6C8	2	6.3	27	CN	DG
	2	6.3	27	EF	GH
6C9	2	6.3	20	ABC	EK
	2	6.3	20	GHJ	EF
6C10	1	6.3	20	BL	CM
	1	6.3	20	EG	FM
	1	6.3	20	JK	DM
6C16	2	6.3	22	AJ	EH
	2	6.3	20	BC	EFG
6C18	3	6.3	17	BCG	EFH
	3	6.3	22	J	EFH
Tube damaged if F or H is moved.					
6CA4	2	6.3	22	A	CD
	2	6.3	22	G	CD
6CA5	3	6.3	22	BEFG	AC
6CA7	3	6.3	22	ACDE	GH
6CA11	3	6.3	22	BC	AG
	3	6.3	20	DF	AE
	3	6.3	20	HKL	AJ
6CB5*	2	6.3	20	(AH)(DE)	B(CF)
6CB6	2	6.3	22	AEFG	BC
No open element test on E & G.					
6CC31	1	6.3	18	AF	DG
	1	6.3	18	BE	DG
6CC42	2	6.3	23	CD	BFGHJ
	2	6.3	23	FG	BCDHJ
6CC43	2	6.3	21	AB	CE
	2	6.3	21	FG	EH
6CD3*	3	6.3	18	(DK)	GM
6CD6	3	6.3	17	EHN	BC
6CE3*	1	6.3	18	(DK)	GM
6CE5*	2	6.3	20	AEF	(BG)D
No open element test on E.					
6CF6	2	6.3	22	AEFG	BC
No open element test on E & G.					
6CF8	1	6.3	20	AFHJ	CD
6CG3*	3	6.3	18	(DK)	GM
6CG7	2	6.3	23	AB	CD
	2	6.3	23	FG	DH
6CG8	1	6.3	20	AB	CEH
	1	6.3	19	FGJ	CEH
No element test or short test on C & H.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6CH3*	3	6.3	19	(BG)	EJ
6CH6	4	6.3	19	BGHJ	CE
6CH7*	1	6.3	19	AB	CE
	1	6.3	19	FG	E(HJ)
6CH8	2	6.3	22	HJ	AE
	2	6.3	21	BCG	EF
No open element test on B.					
6CH40	2	6.3	22	ABFG	CE
	2	6.3	23	HJ	CE
6CJ3*	3	6.3	20	(BG)	EJ
6CJ6	3	6.3	16	ABFGHJN	CE
6CK3*	3	6.3	18	(BG)	EJ
6CK4	1	6.3	21	ACE	GH
6CL3*	3	6.3	19	(BG)	EJ
6CL5*	3	6.3	20	(AH)(DE)N	B(CF)
6CL6*	3	6.3	22	(BJ)(CH)FG	AD
6CL8	2	6.3	22	AB	CD
	2	6.3	22	FGJ	DH
6CM3*	3	6.3	17	(BG)	EJ
6CM4*	3	6.3	19	(AJ)(BFH)	CEG
Tube damaged if C or G is moved.					
6CM5*	3	6.3	19	(AD)EN	CGH
Tube damaged if C or H is moved.					
6CM6*	3	6.3	26	A(CF)J	DG
6CM7	2	6.3	24	AH	EJ
	2	6.3	26	FG	CE
6CM8	2	6.3	24	AJ	DH
	2	6.3	22	BFG	CD
6CN7	1	3.15	21	GH	DEF
	3	3.15	20	A	CDE
	3	3.15	20	B	CDE
6CQ4	3	6.3	21	E	CH
6CQ8	1	6.3	19	AJ	EH
	1	6.3	19	BCF	EG
6CR6	2	6.3	23	EFG	AD
	1	6.3	36	B	AD
6CS6	1	6.3	20	AF	BC
	1	6.3	25	EG	BC
6CS7	3	6.3	24	AC	DJ
	2	6.3	28	FG	DH
6CT3*	3	6.3	18	(BF)	EJ
6CU5	3	6.3	18	BEFG	AD
6CU6	3	6.3	18	DEN	GH
6CU8	1	6.3	20	HJ	AE
	1	6.3	19	BCG	EF
6CW4	1	6.3	18	BD	HM
6CW5*	3	6.3	16	•	CE
				•(AB)(FJ)(GH)	
A, F or H is not used in some tubes.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6CX8	1	6.3	20	BC	AD
	2	6.3	23	GHJ	DF
6CY5*	3	6.3	22	AEF	(BG)C
6CY7	1	6.3	20	FG	DH
	3	6.3	20	ABC	DJ
6CZ5	1	6.3	20	ACFJ	EG
6D1*	1	6.3	20	(AE)F	DG
6D4	3	6.3	20	AG	DE
6D5	3	6.3	32	CE	GH
6D6	3	6.3	27	BCDN	EF
6D7	2	6.3	28	BCN	DFG
6D8	2	6.3	34	EF	GH
	2	6.3	42	CDN	GH
6D10	1	6.3	18	BL	CM
	1	6.3	18	EG	FM
	1	6.3	18	JK	DM
6DA4	3	6.3	21	E	CG
6DA5	1	6.3	22	AG	BE
Eye CL	4	6.3	0	CGHJ	ABE
Eye OP	4	6.3	0	CHJ	ABEG
6DA6	3	6.3	18	BGHJ	CE
6DB5*	3	6.3	20	A(CF)J	(BG)D
6DB6	1	6.3	18	AEFG	BD
6DC6	1	6.3	18	AEFG	BD
No open element test on E & G.					
6DC8	2	6.3	22	ABFJ	CE
	1	6.3	36	G	CE
	1	6.3	36	H	CE
6DE4	4	6.3	22	E	CH
6DE6	2	6.3	20	AEFG	BD
No open element test on E & G.					
6DE7	2	6.3	26	FG	DH
	3	6.3	22	ABC	DJ
6DG6	3	6.3	20	CDE	GH
6DJ8	2	6.3	21	FG	EH
	2	6.3	21	AB	CE
6DK3*	3	6.3	18	(BG)	DN
6DK6	3	6.3	22	AEF	BCG
6DL3*	3	6.3	18	(BG)	DN
6DL4*	3	6.3	18	(ACFGJ)H	BE
6DL5*	3	6.3	23	(AG)EF	BD
6DL7					
Eye OP	4	6.3	0	E	DGH
Eye CL	4	6.3	0	CEF	DGH
No open element test.					
6DL8	1	6.3	40	A	EH
	1	6.3	20	CFG	BE
	1	6.3	40	J	EH
6DM4	3	6.3	22	E	CH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6DN3*	3	6.3	18	(BG)	EJ
6DN6	3	6.3	17	EHN	CG
6DN7	3	6.3	24	AB	CG
	3	6.3	32	DE	FG
6DQ3	3	6.3	18	(DK)	GM
6DQ4	3	6.3	22	E	CH
6DQ5*	1	6.3	19	(AE)(DH)N	(CF)G
6DQ6	3	6.3	22	DEN	GH
6DR4*	1	6.3	20	(AE)F	DG
6DR7	1	6.3	19	FG	EH
	3	6.3	16	ABC	EJ
6DS4	1	6.3	18	BD	HM
6DS5	1	6.3	19	AEFG	BD
6DS8	3	6.3	22	ABFG	CD
	2	6.3	23	HJ	CD
6DT3*	3	6.3	20	(DK)	GM
6DT4*	3	6.3	24	(AE)	CH
6DT5	3	6.3	22	ACFJ	EG
6DT6	1	6.3	20	AEFG	BD
6DT8	3	6.3	20	AB	CE
	3	6.3	20	FG	EH
6DU3*	3	6.3	18	(DK)	GM
6DV4	2	6.3	19	ABDF	GM
6DW4	3	6.3	20	BG	EJ
6DW5	1	6.3	22	ACFJ	EG
6DX8	2	6.3	20	AB	CE
	3	6.3	20	HJ	EFG
6DY5	3	6.3	20	BGJ	CE
6DY7	3	6.3	22	ACD	GH
	3	6.3	22	DEF	GH
H normally shows leakage.					
6ZD4*	3	6.3	21	(AG)(BF)	DE
6DZ7	3	6.3	22	ACD	GH
	3	6.3	22	DEF	GH
No open element test on C & F.					
6DZ8	1	6.3	20	AJ	EH
	3	6.3	20	CFG	BE
6E5	2	6.3	36	BC	EF
Eye OP	4	6.3	0	D	BCEF
Eye CL	4	6.3	0	BD	CEF
6E6	3	6.3	31	BC	DG
	3	6.3	31	EF	DG
6E7	2	6.3	28	BCN	DFG
6E8	2	6.3	31	EF	GH
	2	6.3	40	CDN	GH
6EA4	1	6.3	28	FN	BEJLM
Tube damaged if BEJ or L is moved.					
6EA5*	2	6.3	22	AEF	(BG)C
6EA7	1	6.3	22	DE	FH
	3	6.3	20	AB	CH
6EA8	2	6.3	20	AJ	EH
	2	6.3	20	BCF	EG
6EB5	3	6.3	38	G	AD
	3	6.3	38	B	DE
6EB8	1	6.3	20	BC	AE
	2	6.3	22	GHJ	EF
6EC4*	3	6.3	19	(BGH)	EN
6ED4	1	6.3	26	HN	ABCEFGJ
Tube damaged if ABCEFG or J is moved.					
6EF6	4	6.3	18	CDE	GH
6EH4	1	6.3	28	FN	BEJLM
Tube damaged if BEJ or L is moved.					
6EH5	3	6.3	20	BEFG	AD
6EH7*	2	6.3	21	BGHJ	(AC)E
6EH8*	3	6.3	20	BC	(AF)E
	3	6.3	20	GHJ	(AF)E
No open element test on J.					
6EJ4	1	6.3	26	FN	EM
6EJ7*	3	6.3	18	BGHJ	(AC)E
6EL4	1	6.3	30	EN	ABCDFH
No element tests.					
6EM5	3	6.3	18	ACFJ	EG
6EM7	3	6.3	19	AB	CH
	1	6.3	20	DE	FH
6EN4*	1	6.3	27	(EF)N	ABCDH
No short test.					
6EQ7	1	6.3	34	H	CE
Good tube reads above 25.					
	2	6.3	22	ABFG	CE
6ER5*	2	6.3	20	BEF	(AG)D
6ES5*	3	6.3	21	BE	(AG)D
6ES6	3	6.3	21	AEF	BCG
6ES8	2	6.3	20	AB	CE
	2	6.3	20	FG	EH
6ET6	3	6.3	20	AEF	BCG
6ET7	3	6.3	20	GHJ	EF
No open element test on J.					
	1	6.3	56	B	AE
	1	6.3	56	C	AE
6EU7	2	6.3	24	EF	BD
	2	6.3	24	GH	BJ
6EU8	2	6.3	19	AGJ	EH
	2	6.3	19	BC	EF
6EV5	2	6.3	22	AEF	(BG)D
6EV7	2	6.3	23	AB	CE
	2	6.3	23	FG	EH
6EW6	2	6.3	20	AEFG	BD
6EW7	3	6.3	19	ABC	EJ
	3	6.3	30	FG	EH
6EX6	3	6.3	15	EHN	CG
6EY6	3	6.3	22	CDE	BH
6EZ5	3	6.3	21	CDE	GH
6EZ8	1	6.3	20	BC	AD
	1	6.3	20	FG	D
	1	6.3	20	HJ	D
6F5	1	6.3	20	DN	GH
6F6	3	6.3	32	CDE	GH
6F7	3	6.3	43	BCN	FG
	3	6.3	82	DE	FG
6F8	2	6.3	24	CN	DG
	2	6.3	24	EF	GH
6F10	3	6.3	21	DFH	CEG
No open element test on C & H.					
6F19	1	6.3	22	BGHJ	ACE
Tube damaged if A or C is moved.					
6F22	1	6.3	20	AFHJ	CE
6F26	1	6.3	22	BGHJ	ACE
Tube damaged if A or C is moved.					
6F29*	2	6.3	21	BGHJ	(AC)E
6F30	2	6.3	21	BGHJ	ACE
Tube damaged if A or C is moved.					
6F33	2	6.3	25	AEFG	BC
6F35	2	6.3	23	AEF	BGC
Tube damaged if B or G is moved.					
6FA7	2	6.3	24	AGH	DF
	2	6.3	24	GHJ	DF
	1	6.3	46	C	DF
6FD6	1	6.3	19	ABEF	DG
6FD7*	1	6.3	21	FG	EH
	3	6.3	18	A(BC)	EJ
6FE5	3	6.3	22	CDE	BH
6FG5*	3	6.3	20	AEF	(BG)C
No open element test on E.					
6FG6	1	6.3	28	AJ	CE
	4	6.3	100	BFGH	CE
Good tube reads above 8.					
6FG7*	2	6.3	19	AB	(CH)E
	3	6.3	19	GJ	(CH)EF
6FH5*	2	6.3	21	BE	(AG)D
6FH6	3	6.3	15	DEN	GH
6FH8	2	6.3	33	AGHJ	D
	2	6.3	20	BC	D
	1	6.3	18	F	D
6FJ7	2	6.3	25	KL	JM
	3	6.3	21	CE	GM
6FM7*	3	6.3	19	(CH)E	GM
	1	6.3	20	KL	JM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6FM8	1	6.3	20	B	CE
	1	6.3	20	F	AE
	1	6.3	22	HJ	EG
6FQ5*	3	6.3	20	BE	(AG)D
6FQ7	2	6.3	23	AB	CE
	2	6.3	23	FG	EH
6FR7*	3	6.3	19	A(BC)	EJ
	3	6.3	30	FG	EH
6FS5*	2	6.3	20	AF	(BG)DE
6FV6	2	6.3	20	AEF	DG
No open element test on F.					
6FV8	2	6.3	21	FGJ	EH
	2	6.3	21	AB	CE
6FW5	3	6.3	20	AEH	CG
6FY5	2	6.3	20	BE	ADG
No element or short test on A & G.					
6FY7	3	6.3	19	CE	GM
	1	6.3	21	KL	JM
6G5	2	6.3	36	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6G6	3	6.3	36	CDE	GH
6G6G	2	6.3	28	CDE	BH
6G7	3	6.3	36	BN	CEG
	1	6.3	24	D	CG
	1	6.3	24	F	CG
6G11	1	6.3	20	CDFG	BM
	3	6.3	20	HKL	JM
6GA7*	3	6.3	20	(BC)DG	EM
	3	6.3	24	L	HM
6GA8	2	6.3	22	FG	EH
	2	6.3	22	AB	CE
6GB3	3	6.3	19	DE	GH
6GB5*	3	6.3	19	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
6GB6	3	6.3	21	DEN	GH
6GB7	3	6.3	18	DEN	BH
6GB9	3	6.3	22	DEN	GH
6GC5*	3	6.3	21	(AH)(CF)J	EG
6GC6	2	6.3	21	DEHN	CG
6GD7*	3	6.3	19	AB	(CH)E
	3	6.3	19	GJ	(CH)EF
6GE5*	3	6.3	19	B(CL)G	(DK)M
6GF5*	3	6.3	19	B(CL)G	(DK)M
6GF7	3	6.3	18	BF	CE
	1	6.3	20	HJ	AE
6GH8	2	6.3	17	BCF	EG
	2	6.3	17	AJ	EH
6GJ5*	3	6.3	20	(AG)(BF)N	CE
6GJ7*	3	6.3	19	BG	(AC)EF
	3	6.3	20	HJ	(AC)E
6GK5	3	6.3	20	BE	ADG
Tube damaged if A or G is moved.					
6CK6*	2	6.3	20	BGH	A(CJ)E
6GK17	3	6.3	22	E	CG
6GL7	3	6.3	19	AB	CH
	1	6.3	20	DE	FH
6GM5	3	6.3	21	AFJ	EG
6GM6	2	6.3	20	AEF	BDG
6GM8	2	6.3	22	AB	CE
	2	6.3	22	FG	EH
6GN8	1	6.3	19	BC	AE
	3	6.3	19	GH	EFJ
6GQ7	1	6.3	20	F	EG
	1	6.3	20	H	EJ
	1	6.3	20	B	AE
6GS7	3	6.3	19	FGJ	CEH
	3	6.3	21	AB	CEH
Tube damaged if C or H is moved.					
6GS8	2	6.3	20	BCFG	AE
	2	6.3	20	BGHJ	AE
6GT5*	3	6.3	19	(AG)(BF)J	CE
6GU5*	1	6.3	19	A	(BG)D
	1	6.3	29	EF	(BG)D
6GU7	3	6.3	22	AB	CE
	3	6.3	22	FG	EH
6GV5*	3	6.3	19	CGL(EJ)N	(DK)M
6GV7	3	6.3	17	BCG	EFH
	3	6.3	22	AJ	EFH
Tube damaged if F or H is moved.					
6GV8	1	6.3	19	AB	CE
	3	6.3	20	FGJ	EH
6GW5*	2	6.3	20	A(BF)	DE
6GW6	3	6.3	20	DEN	GH
6GW8	1	6.3	20	AJ	BE
	3	6.3	20	CFH	EG
6GX6	1	6.3	19	A	BD
	1	6.3	21	EFG	BD
6GX7*	2	6.3	20	BG	(AC)EF
	3	6.3	21	HJ	(AC)E
6GY5*	3	6.3	18	(CGL)(EJ)N	(DK)M
6GY6	3	6.3	19	AEFG	BD
6GY8	1	6.3	26	AB	E
	1	6.3	19	CJ	EH
	1	6.3	22	F	EG
No open element test on B & C.					
6GZ5*	3	6.3	19	(BE)F	ADG
6H4	1	6.3	26	D	GH
6H5	2	6.3	36	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6H6	1	6.3	25	C	DG
	1	6.3	25	E	GH
6H7S	3	6.3	33	BCD	FG
	2	6.3	52	EN	FG
6HA5	3	6.3	18	AE	BDG
Tube damaged if B or G is moved.					
6HA6*	3	6.3	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
6HB5*	3	6.3	18	B(CL)G	(DK)M
6HB6*	3	6.3	18	B(FH)	AE
	1	6.3	24	(CJ)G	AE
6HB7	2	6.3	20	HJ	ACE
	3	6.3	20	BFG	ACE
Tube damaged if A or C is moved.					
6HC8	3	6.3	23	CFG	BE
	3	6.3	26	AJ	EH
6HD5*	3	6.3	19	(CL)(EJ)G	(DK)M
6HD7	3	6.3	20	BFG	ACE
	3	6.3	19	HJ	ACE
Tube damaged if A or C is moved.					
6HE5*	3	6.3	21	(BJ)(CK)F	(DL)M
6HE7	1	6.3	19	B	DM
	3	6.3	18	EJL	HM
6HF5*	3	6.3	19	C(EJ)FHLN	(DK)M
6HF8	1	6.3	19	BC	AE
	3	6.3	19	GH	EFJ
6HG5*	3	6.3	26	(AG)EF	BD
6HG8*	3	6.3	18	BJ	(AC)EH
	3	6.3	20	FG	(AC)E
6HJ5*	3	6.3	18	(CL)(EJ)G	BDKM
Tube damaged if D or K is moved.					
6HJ7	3	6.3	19	BFG	ACE
	3	6.3	18	HJ	ACE
Tube damaged if A or C is moved.					
6HJ8	1	6.3	19	H	EG
	3	6.3	19	BC	AE
	3	6.3	28	CFJ	AE
6HK5	3	6.3	18	AE	BDG
Tube damaged if B or G is moved.					
6HL5*	3	6.3	18	(AB)GJ	CE
6HL8	2	6.3	20	AJ	EH
	3	6.3	19	BC	EFG
6HM5	3	6.3	18	AE	BDG
Tube damaged if B or G is moved.					
6HM6	3	6.3	19	BH	ACE
	1	6.3	34	GJ	ACE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6HQ5	3	6.3	18	AE	**BDG**
Tube damaged if B or G is moved.					
6HR5*	3	6.3	26	(AG)EF	**BD**
6HR6	3	6.3	18	ABEF	**DG**
6HS5*	3	6.3	18	(BL)(CK)G	**DM**
6HS6	1	6.3	19	A	**DG**
	1	6.3	21	BEF	**DG**
6HS8	2	6.3	24	BHJ	**AE**
	2	6.3	21	CFG	**AE**
6HT5	1	6.3	40	FN	**M**
6HU6*	1	6.3	22	AJ	**CE**
	4	6.3	100	(BFH)G	**CE**
Good tube reads above 8.					
6HU8	3	6.3	21	ABC	**EG**
	3	6.3	21	FHJ	**EG**
6HV5*	3	6.3	20	(BL)(CK)G	**DM**
6HW8	3	6.3	22	CF	**ABEGHJ**
6HZ5*	3	6.3	18	(BL)(CK)G	**DM**
6HZ6	2	6.3	20	AEFG	**BD**
6HZ8	2	6.3	21	BC	**AE**
	3	6.3	19	GH	**EFJ**
6J4	2	6.3	20	**AEFG**	**BD**
6J5	2	6.3	24	CE	**GH**
6J6	1	6.3	18	AF	**DG**
	1	6.3	18	BE	**DG**
6J7	2	6.3	29	CDN	**AEGH**
6J8	2	6.3	25	CDN	**GH**
	2	6.3	25	EF	**GH**
6J9	2	6.3	20	AB	**CE**
	2	6.3	20	FJ	**EK**
	2	6.3	20	GH	**EK**
6J10	4	6.3	68	DEFG	**HM**
	3	6.3	20	BJL	**CM**
6J11	3	6.3	18	BE	**CDFM**
	3	6.3	18	GL	**HJKM**
6JA5*	3	6.3	21	(BJ)(CK)F	**DLM**
Tube damaged if D or L is moved.					
6JA8	2	6.3	20	BC	**AE**
	3	6.3	19	GH	**EFJ**
6JB5*	3	6.3	21	(BJ)(CK)F	**DLM**
Tube damaged if D or L is moved.					
6JB6*	3	6.3	19	•	**CE**
				•(AG)(BF)HN	
6JC5*	3	6.3	21	(BJ)(CK)F	**DLM**
Tube damaged if D or L is moved.					
6JC6	2	6.3	19	BGHJ	**ACE**
No element or short test on A & C.					
6JC8*	2	6.3	20	BCF	**(AG)E**
No open element test on F.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
	2	6.3	20	HJ	**(AG)E**
6JD5*	3	6.3	18	(BL)(CK)G	**DM**
6JD6	3	6.3	19	BH	**ACEG**
No element or short test on A & C.					
6JE6*	3	6.3	17	•	**CE**
				•(AG)(BF)HN	
6JE8	2	6.3	20	BC	**AE**
	3	6.3	19	GHJ	**EF**
6JF6*	3	6.3	18	•	**CE**
				•(AG)(BF)HN	
6JG5	3	6.3	19	GHJ	**DF**
6JG6*	3	6.3	18	(AG)BJ	**ECF**
6JH5*	3	6.3	20	•	**DM**
				•(BL)(CK)(GH)	
6JH6	3	6.3	18	AF	**BD**
	1	6.3	48	EG	**BD**
6JH8	2	6.3	35	ABCJ	**DG**
	3	6.3	23	CF	**DG**
6JK5*	3	6.3	20	•	**DM**
				•(BL)(CK)(GH)	
6JK6	3	6.3	18	AF	**BD**
	1	6.3	33	EG	**BD**
6JK8	2	6.3	19	AB	**CE**
	2	6.3	20	FG	**EH**
6JL6	3	6.3	18	AF	**BD**
	1	6.3	32	EG	**BD**
6JM6	3	6.3	20	CEN	**BDKM**
Tube damaged if D or K is moved.					
6JN6	3	6.3	20	CGL	**BDKM**
Tube damaged if D or K is moved.					
6JN8	3	6.3	19	AB	**CE**
	3	6.3	20	GJ	**EFH**
6JQ6*	3	6.3	20	A(BC)(GH)	**DJ**
	1	6.3	23	F	**DJ**
6JR6*	3	6.3	18	(AG)BJ	**CEF**
6JS6*	3	6.3	18	(CL)(EJ)N	**BDKM**
Tube damaged if D or K is moved.					
6JT6*	3	6.3	20	(AG)BFJ	**CE**
6JT8	3	6.3	18	GH	**EFJ**
	1	6.3	19	BC	**AE**
6JU6*	3	6.3	17	•	**CE**
				•(AG)(BF)HN	
6JU8	3	6.3	22	GH	**EJ**
	3	6.3	22	G	**EH**
	3	6.3	22	AB	**CE**
	3	6.3	22	A	**BE**
6JV8	3	6.3	18	GH	**EFJ**
	1	6.3	19	BC	**AE**
6JW8	2	6.3	21	AJ	**EH**
	2	6.3	20	BCF	**EG**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6JX8	2	6.3	20	HJ	**CE**
	2	6.3	20	ABFG	**CE**
6JY8	2	6.3	20	BC	**AE**
	2	6.3	20	GHJ	**EF**
6JZ6*	3	6.3	18	(DK)CEN	**BM**
6JZ8*	3	6.3	20	D(FG)H	**JM**
	1	6.3	21	BK	**LM**
6K5	1	6.3	20	CN	**GH**
6K6	3	6.3	34	CDE	**GH**
6K7	2	6.3	32	CDN	**EGH**
6K8	1	6.3	20	DE	**GH**
	1	6.3	20	EF	**GH**
	1	6.3	39	CN	**GH**
6K11	2	6.3	23	JK	**DM**
	1	6.3	20	BL	**CM**
	1	6.3	20	EG	**FM**
6KA8	3	6.3	19	FGHJ	**CE**
	2	6.3	21	AB	**CE**
6KD6*	2	6.3	17	•	**BM**
				•(CL)(DK)(EJ)N	
6KD8	2	6.3	20	BCF	**EG**
No open element test on F.					
	2	6.3	20	AJ	**EH**
6KE8	2	6.3	18	AJ	**EH**
	2	6.3	18	BCF	**EG**
6KF8	2	6.3	20	BGHJ	**AE**
	2	6.3	20	BCFG	**AE**
6KG6*	4	6.3	21	•	**EJ**
				•(AH)(BG)(CF)N	
6KH8	3	6.3	24	AB	**DG**
	3	6.3	20	BCJ	**DG**
	3	6.3	20	FHJ	**DG**
6KL8	1	6.3	48	H	**CE**
	2	6.3	20	ABFG	**CE**
6KM6*	3	6.3	18	•	**CE**
				•(AG)(BF)HN	
6KM8*	1	6.3	48	C	**EF**
	2	6.3	20	GH	**EF**
	1	6.3	30	ABJ	**EF**
6KN6*	3	6.3	17	•	**BM**
				•(CL)(DK)(EJ)N	
6KN8	3	6.3	19	AB	**CE**
	3	6.3	19	FG	**EH**
6KR8	3	6.3	20	BC	**AE**
	3	6.3	20	GHJ	**EF**
6KS8	1	6.3	20	BC	**AE**
	3	6.3	19	GH	**EFJ**
F may show leakage.					
6KT6	3	6.3	19	BFHJ	**ACE**
Tube damaged if A or C is moved.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6KT8	3	6.3	20	GH	EFJ
	1	6.3	19	BC	AE
6KU8	1	6.3	38	C	AE
	1	6.3	38	B	AE
	3	6.3	17	GHJ	EF
6KV6*	3	6.3	18	(AG)BFJ	CE
6KV8	3	6.3	18	GHJ	EF
	2	6.3	19	BC	EA
6KY6*	3	6.3	17	B(CJ)GH	AE
6KY8	1	6.3	19	HJ	AE
	3	6.3	20	BFG	CE
6KZ8	3	6.3	20	BG	CEF
	3	6.3	19	AJ	EH
6L5	2	6.3	26	CE	GH
6L6	3	6.3	27	CDE	GH
6L7	2	6.3	56	D	GH
	2	6.3	26	CEN	GH
6LB6*	3	6.3	18	•	BM
	•(CL)(DK)(EJ)				
6LB8	3	6.3	18	GH	EFJ
	2	6.3	25	BC	AE
6LC8	2	6.3	20	AB	CE
C should show short when tube is heated, Sec. 1.					
	2	6.3	20	FHJ	CEG
6LD6*	2	6.3	21	B(CJ)(FH)G	AD
6LE8	2	6.3	19	AHJ	BCE
	2	6.3	19	FHJ	CEG
6LF6*	3	6.3	18	•	BM
	•(CL)(DK)(EJ)N				
6LF8	1	6.3	20	BC	AE
	3	6.3	20	GHJ	EF
6LG6*	3	6.3	20	(CL)(EJ)N	DKM
Tube damaged if D or K is moved.					
6LH6	1	6.3	26	EN	FG
6LJ6	1	6.3	28	EN	FG
6LJ8*	3	6.3	19	GJ	(CH)EF
	3	6.3	21	AB	(CH)E
6LM8	3	6.3	18	BCF	EG
	3	6.3	18	AJ	EH
6LN8	3	6.3	21	AJ	EH
	3	6.3	20	BCF	EG
6LQ6*	3	6.3	17	•	CE
	•(AG)(BF)HN				
6LQ8	3	6.3	18	BC	AE
	3	6.3	18	GHJ	EF
6LR6*	3	6.3	17	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
6LR8	3	6.3	19	BFG	CE
	1	6.3	19	HJ	AE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6LT8	1	6.3	18	H	EG
	1	6.3	18	F	EG
	3	6.3	19	BCJ	AE
6LU6	3	6.3	20	AEFG	BD
6LU8*	3	6.3	18	D(FG)H	JM
	1	6.3	18	BK	LM
6LV6*	3	6.3	18	•	BM
	•(CL)(DK)(EJ)N				
6LW6*	3	6.3	17	(AE)CN	BFG
Tube damaged if B or F is moved.					
6LX6*	3	6.3	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
6LX8	2	6.3	21	AJ	EH
	2	6.3	20	BCF	EG
6LY8	1	6.3	18	BC	AE
	3	6.3	18	GHJ	EF
6LZ6*	3	6.3	19	(AG)(BF)N	CE
6M8	2	6.3	26	CDN	AG
	2	6.3	26	EF	AG
	1	6.3	34	H	AG
6M11	2	6.3	19	GH	JM
	2	6.3	19	EF	DM
	3	6.3	18	BC	KLM
6MA6	2	6.3	38	FN	GH
6MB6*	3	6.3	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
6MB8	3	6.3	19	GJ	EFH
	3	6.3	21	AB	CE
6MC6*	3	6.3	18	•	CD
	•(AG)(BF)HN				
6MD8	2	6.3	20	AJ	EG
	2	6.3	20	BH	EG
	2	6.3	20	CF	EG
6ME5	2	6.3	29	AB	DG
Eye CL	4	6.3	0	BE	ADG
Eye OP	4	6.3	0	E	ABDG
6ME6*	3	6.3	20	•	CE
	•(AG)(BF)HN				
6ME8	3	6.3	21	CFHJ	ABEG
6MF8*	3	6.3	19	D(FG)H	JM
	1	6.3	19	BK	LM
6MG8	3	6.3	20	BCF	EG
	3	6.3	20	AJ	EH
6MH1*	2	6.3	20	(AEF)G	BD
6HM6*	3	6.3	18	•	BM
	•(CL)(DK)(EJ)				
6MH3	2	6.3	22	BE	CG
	2	6.3	22	AF	CG
6MJ6*	3	6.3	19	•	CE
	•(AG)(BF)HN				

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6MJ8	3	6.3	22	BL	CM
	3	6.3	22	DK	CM
	3	6.3	22	FH	CM
6MK8	2	6.3	20	BGHJ	AE
	2	6.3	20	BCFG	AE
6ML4*	2	6.3	21	(AG)(BF)	DE
6ML8	2	6.3	20	CF	EG
	2	6.3	20	BH	EG
	2	6.3	20	AJ	EG
6MN8	3	6.3	22	BL	CM
	3	6.3	22	DK	CM
	3	6.3	22	FH	CM
6MP17	3	6.3	22	AEF	BD
6MP18*	3	6.3	20	(AG)EF	BC
6MP20	3	6.3	20	AEF	BD
6MQ8	2	6.3	21	AJ	EH
	2	6.3	20	BCF	EG
6MU8	2	6.3	22	AJ	EH
	2	6.3	21	BCF	EG
6MV8	3	6.3	19	GH	EFJ
	1	6.3	20	BC	AE
6MX8	3	6.3	20	BFG	CE
	1	6.3	28	HJ	AE
6MY8*	3	6.3	19	D(FG)H	JM
	1	6.3	19	BK	LM
6N3	3	6.3	21	J	CD
6N4*	2	6.3	24	(AG)E	(BF)D
6N5	1	6.3	37	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6N6	3	6.3	61	DE	CGH
	3	6.3	41	CE	DGH
6N7	3	6.3	29	EF	GH
	3	6.3	29	CD	GH
6N8	1	6.3	22	ABF	CD
	1	6.3	45	G	CD
	1	6.3	45	H	CD
6P5	2	6.3	30	CE	GH
6P7	2	6.3	32	DEN	BH
	3	6.3	70	FG	BH
6PL12	1	6.3	20	AJ	EH
	1	6.3	20	CFG	BE
6Q4	2	6.3	21	ABGHJ	CD
6Q5	4	6.3	20	CE	GH
6Q6	1	6.3	20	CN	GH
	1	6.3	90	E	GH
6Q7	1	6.3	21	CN	GH
	1	6.3	47	D	GH
	1	6.3	47	E	GH
6Q8	2	6.3	31	EF	GH
	2	6.3	40	CDN	GH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6Q11	2	6.3	23	JK	DM
	1	6.3	20	EG	FM
	1	6.3	20	BL	CM
6R3	2	6.3	22	BJ	DN
6R6	3	6.3	41	CEN	GH
6R7	1	6.3	33	D	GH
	1	6.3	33	E	GH
	3	6.3	37	CN	GH
6R8	1	6.3	20	A	EG
	1	6.3	20	F	EG
	2	6.3	25	B	CE
	2	6.3	30	HJ	EG
6RA8*	3	6.3	22	(BG)J	AE
6RA9*	3	6.3	20	(BG)J	AD
6RB11*	3	6.3	21	A(CF)J	DH
6RHH2	2	6.3	21	FG	DH
	2	6.3	21	AB	CD
6RHH8	3	6.3	19	FG	EH
	3	6.3	19	AB	CE
6RK19*	3	6.3	20	(BJ)	EN
6RP15*	3	6.3	22	(AB)GJ	CD
6RP22*	2	6.3	20	(BJ)(CH)FG	AE
6S4	3	6.3	24	CFJ	BE
6S6	3	6.3	24	ADN	GH
6S7	2	6.3	28	CDN	EGH
6S8	1	6.3	28	FN	BG
	1	6.3	40	A	BG
	1	6.3	40	D	BG
	1	6.3	40	C	EG
6S78	2	6.3	21	AB	CG
	2	6.3	21	DE	FG
6SA7	2	6.3	28	CDH	AFG
	2	6.3	24	DE	FGH
6SB7Y	2	6.3	22	DE	AFG
	1	6.3	34	CDH	EFG
6SC7	3	6.3	33	BC	FG
	3	6.3	38	DE	FG
6SD7	3	6.3	23	DFH	CEG
6SE7	2	6.3	23	DFH	CEG
6SF5	1	6.3	20	CE	BG
6SF7	1	6.3	40	E	CG
	3	6.3	30	BDF	CG
6SG7*	3	6.3	19	DFH	(CE)G
6SH7*	2	6.3	20	DFH	(CE)G
6SJ7	2	6.3	27	DFH	CEG
6SK7	3	6.3	30	DFH	CEG
6SL7	3	6.3	28	DE	FG
	3	6.3	28	AB	CG
6SN7	2	6.3	26	DE	FG
	2	6.3	26	AB	CG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6SQ7	1	6.3	40	E	CG
	1	6.3	40	D	CG
	1	6.3	20	BF	CG
6SR7	2	6.3	30	BF	CG
	1	6.3	50	D	CG
	1	6.3	50	E	CG
6SS7	3	6.3	30	DFH	CEG
6ST7	2	6.3	28	BF	CG
	1	6.3	95	D	CG
	1	6.3	95	E	CG
6SU7	2	6.3	25	AB	CDEFH
	2	6.3	25	DE	ABCFH
6SV7	2	6.3	23	BDF	CH
	2	6.3	28	E	CH
6SZ7	1	6.3	50	E	CH
	1	6.3	50	D	CH
	1	6.3	21	BF	CH
6T1	2	6.3	21	(AG)(BF)	DE
6T4*	2	6.3	20	(AG)(BF)	CE
6T5	1	6.3	24	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6T6M	2	6.3	22	CDN	GH
6T7	1	6.3	20	CN	GH
	1	6.3	40	D	GH
	1	6.3	40	E	GH
6T8	3	6.3	32	HJ	CEG
	1	6.3	20	F	CEG
	1	6.3	20	B	CEG
	1	6.3	20	A	CEG
6T9	3	6.3	20	HKL	JM
	1	6.3	19	BD	EM
6T10	3	6.3	19	HK	JLM
	1	6.3	21	CEFG	BM
6U3	3	6.3	17	J	CD
6U4	3	6.3	18	E	CG
6U5	2	6.3	34	BC	EF
Eye CL	4	6.3	0	BD	CEF
Eye OP	4	6.3	0	D	BCEF
6U6	3	6.3	24	CDE	GH
6U7	2	6.3	30	CDN	EGH
6U8	2	6.3	22	BCF	EG
No open element test on F.					
	2	6.3	22	AJ	EH
6U10	1	6.3	20	EG	FM
	2	6.3	23	JK	DM
	2	6.3	23	BL	CM
6V3	3	6.3	16	BGJ	EN
6V4	3	6.3	26	A	CE
	3	6.3	26	G	CE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6V6	3	6.3	29	CDE	AGH
6V7	3	6.3	46	N	GH
	1	6.3	50	D	GH
	1	6.3	50	E	GH
6V8	1	6.3	20	G	EH
	1	6.3	21	AF	CE
	2	6.3	22	B	CE
	2	6.3	65	J	CE
6W4	3	6.3	18	E	CH
6W5	3	6.3	25	C	GH
	3	6.3	25	E	GH
6W6	3	6.3	21	CDE	GH
6W7	1	6.3	20	CDN	EGH
6X4	3	6.3	30	F	DG
	3	6.3	30	A	DG
6X5	3	6.3	32	E	GH
	3	6.3	32	C	GH
6X6	2	6.3	41	E	GH
Eye CL	4	6.3	0	CD	EGH
Eye OP	4	6.3	0	D	CEGH
6X8	2	6.3	21	BC	EF
No open element test on J.					
	2	6.3	20	GHJ	AEF
6Y3G	4	6.3	47	N	G
6Y5	3	6.3	28	C	DF
	3	6.3	28	E	DF
6Y6	3	6.3	19	CDE	GH
6Y7	3	6.3	33	CD	GH
	3	6.3	33	EF	GH
6Y10	3	6.3	20	HKL	JM
	2	6.3	20	CEFG	BM
6Z3	3	6.3	24	B	CD
6Z4	3	6.3	26	B	DE
	3	6.3	26	C	DE
6Z5	3	6.3	25	C	BDF
(12Z5)	3	6.3	25	E	BDF
6Z7	3	6.3	32	CD	GH
	3	6.3	32	EF	GH
6Z10	3	6.3	20	BJL	CM
	4	6.3	56	DEFG	HM
6ZY5	3	6.3	36	C	GH
	3	6.3	36	E	GH
7A4	2	6.3	24	BF	GH
7A5	3	6.3	23	BCF	GH
7A6	1	6.3	28	C	BH
	1	6.3	28	F	GH
7A7	3	6.3	28	BCF	DGH
7A8	2	6.3	35	CD	GH
	2	6.3	44	BEF	GH
7AB7*	3	6.3	26	ACE	(DFH)G

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
7AD7	3	6.3	17	BCDF	EGH
7AF7	2	6.3	25	CD	BGH
	2	6.3	25	EF	BGH
7AG7	2	6.3	22	BCF	DEGH
7AH7	2	6.3	21	BCDF	GH
7AJ7	2	6.3	23	BCF	DGH
7AK7	2	6.3	22	BCDF	GH
7AN7	3	7.5	21	FJ	DGH
	2	7.5	20	BC	AD
Tube damaged if G or H is moved.					
7AU7	2	3.15	25	FG	DEH
	2	3.15	25	AB	CDE
7B4	1	6.3	22	BF	GH
7B5	3	6.3	29	BCF	GH
7B6*	2	6.3	25	BC	(DG)H
	1	6.3	58	E	(DG)H
	1	6.3	58	F	(DG)H
7B7	2	6.3	28	BCF	DGH
7B8	2	6.3	28	CD	GH
	2	6.3	34	BEF	GH
7C4	2	6.3	33	D	GH
7C5	3	6.3	29	BCF	GH
7C6*	3	6.3	33	BC	(DG)H
	1	6.3	40	E	(DG)H
	1	6.3	40	F	(DG)H
7C7	1	6.3	22	BCF	DGH
7CL8	2	7.5	22	AB	CD
	2	7.5	22	FGJ	DH
7D10	4	6.3	19	BGHJ	CE
7D11	3	6.3	21	CDE	GH
7DJ8	2	7.5	21	AB	CE
	2	7.5	21	FG	EH
7DZ7	3	7.5	22	ACD	GH
	3	7.5	22	DEF	GH
No open element test on C & F.					
7E5*	2	6.3	34	(AE)(CG)	(DF)H
7E6*	2	6.3	27	BC	(DG)H
	1	6.3	45	E	(DG)H
	1	6.3	45	F	(DG)H
7E7	3	6.3	36	BEF	GH
	1	6.3	40	C	GH
	1	6.3	46	D	GH
7ED7	2	7.5	20	BGHJ	ACE
7ES8	2	7.5	20	AB	CD
	2	7.5	20	FG	DH
7EY6	3	7.5	25	CDE	BH
7F7	1	6.3	20	CD	BH
	1	6.3	20	EF	GH
7F8	2	6.3	22	AC	DG
	2	6.3	22	FH	EG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
7G7	2	6.3	22	BCDF	GH
7G8	2	6.3	24	BCD	EFGH
	2	6.3	24	CEG	BDFH
7GS7	3	7.5	19	FGJ	CEH
	3	7.5	21	AB	CEH
Tube damaged if C or H is moved.					
7GV7	3	7.5	17	BCG	EFH
	3	7.5	22	AJ	EFH
Tube damaged if F or H is moved.					
7H7	2	6.3	24	BCF	DGH
7HG8*	3	7.5	18	BJ	(AC)EH
	3	7.5	20	FG	(AC)E
7J7	2	6.3	30	CDE	GH
	2	6.3	30	BEF	GH
7K7	1	6.3	20	CD	BH
	1	6.3	39	E	GH
	1	6.3	39	F	GH
7KY6*	3	7.5	17	B(CJ)GH	AE
7KZ6*	3	7.5	18	B(CJ)GH	AE
7L7	2	6.3	26	BCF	DGH
7MP18*	3	7.5	20	(AG)EF	BC
7N7	2	6.3	26	CD	BH
	2	6.3	26	EF	GH
7Q7	2	6.3	25	CD	GH
	2	6.3	41	BEF	GH
7R7	2	6.3	22	BEF	GH
	1	6.3	50	C	GH
	1	6.3	50	D	GH
7S7	2	6.3	33	CD	GH
	2	6.3	23	BEF	GH
7SC7	3	7.5	33	BC	FG
	3	7.5	38	DE	FG
7V7	3	6.3	18	BCF	DGH
7W7*	2	6.3	24	BCF	(DG)EH
7X6	3	6.3	20	C	BH
	3	6.3	20	F	GH
7X7	1	6.3	21	BC	DGH
	1	6.3	20	E	DGH
	1	6.3	21	F	DGH
7Y4	3	6.3	33	C	GH
	3	6.3	33	F	GH
7Z4	3	6.3	34	C	GH
	3	6.3	34	F	GH
8A8	3	7.5	22	AJ	EH
	3	7.5	20	BCF	EG
8AC9	3	9.45	19	GJK	HLM
	1	9.45	19	BC	DM
	1	9.45	19	B	CM
8AC10	3	7.5	20	BL	CM
	3	7.5	20	EG	FM
	3	7.5	20	JK	DM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
8AL9	3	7.5	20	EG	FM
	2	7.5	20	BDKL	JM
8AR11	3	7.5	18	JK	GHLM
	3	7.5	18	CE	BDFM
8AU8	2	7.5	22	GHJ	DF
	2	7.5	22	BC	AD
8AV11	2	7.5	23	BL	CM
	2	7.5	23	EG	FM
	2	7.5	23	JK	DM
8AW8	3	7.5	22	GHJ	DF
	3	7.5	24	BC	AD
8B8	2	7.5	22	AJ	EH
	3	7.5	20	CFG	BE
8B10	2	9.45	21	EF	GM
	2	9.45	21	CD	BM
	1	9.45	20	K	JM
	1	9.45	20	H	JM
8BA8	2	7.5	20	GHJ	EF
	1	7.5	18	BC	AE
8BA11	2	7.5	22	JL	KM
	2	7.5	22	DFG	HM
	2	7.5	23	BCE	HM
8BH8	2	7.5	20	GHJ	EF
	1	7.5	20	BC	AE
8BM11	3	7.5	21	BCDF	EM
	3	7.5	22	GHJL	KM
8BN8	2	7.5	21	A	BD
	1	7.5	18	GH	DJ
8BN11	3	7.5	18	CDEF	BM
	3	7.5	18	GJKL	HM
8BQ5	3	7.5	20	ABGJ	CD
8BQ11	3	7.5	18	BCDE	FM
	3	7.5	19	GHJK	LM
8BU11	3	7.5	18	CD	BM
	3	7.5	18	FG	EM
	3	7.5	18	HJK	LM
8CB11	3	7.5	19	JK	GHLM
	3	7.5	19	CE	BDFM
8CG7	2	7.5	24	FG	DH
	2	7.5	24	AB	CD
8CM7	2	7.5	24	FG	CE
	2	7.5	22	AH	EJ
8CN7	3	7.5	20	B	CDE
	3	7.5	20	A	CDE
	1	7.5	20	GH	DEF
8CS7	3	7.5	24	AC	DJ
	2	7.5	26	FG	DH
8CW5*	3	7.5	20	(AB)(FGH)J	CE
A, F or H is not used in some tubes.					
8CX8	1	7.5	19	GHJ	DF
	1	7.5	19	BC	AD

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
8CY7	1	7.5	20	FG	DH
	3	7.5	20	ABC	DJ
8D8	1	6.3	21	AFHJ	CE
No open element test on F.					
8DX8	2	7.5	20	AB	CE
	3	7.5	20	HJ	EFG
8EB8	2	7.5	22	GHJ	EF
	1	7.5	20	BC	AE
8EM5	3	9.45	18	ACFG	EG
8ET7	1	7.5	56	C	AE
	1	7.5	56	B	AE
	3	7.5	20	GHJ	EF
No open element test on J.					
8FE5	3	7.5	22	CDE	BH
8FQ7	2	7.5	23	FG	EH
	2	7.5	23	AB	CE
8FY7	3	7.5	19	CE	GM
	1	7.5	21	KL	JM
8GJ7*	3	9.45	21	HJ	(AC)E
	3	9.45	19	BG	(AC)EF
8GN8	3	7.5	19	GH	EFJ
	1	7.5	19	BC	AE
8GU7	3	7.5	22	FG	EH
	3	7.5	22	AB	CE
8HA6*	3	7.5	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
8JE8	2	7.5	20	BC	AE
	3	7.5	19	GHJ	EF
8JT8	3	7.5	18	GH	EFJ
	1	7.5	19	BC	AE
8JU8	3	7.5	22	GH	EJ
	3	7.5	22	G	EH
	3	7.5	22	AB	CE
	3	7.5	22	A	BE
8JV8	3	9.45	18	GH	EFJ
	1	9.45	19	BC	AE
8K11	2	7.5	23	JK	DM
	1	7.5	20	BL	CM
	1	7.5	20	EG	FM
8KA8	3	9.45	19	FGHJ	CE
	2	9.45	21	AB	CE
8KR8	3	7.5	18	GHJ	EF
	3	7.5	18	BC	AE
8KS8	3	7.5	19	GH	EFJ
	1	7.5	20	BC	AE
8LC8	2	7.5	20	AB	CE
	2	7.5	20	FHJ	CEG
	2	7.5	20	FHJ	CEG
C should show short when tube is heated, Sec. 2.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
8LE8	2	7.5	19	FHJ	CGE
	2	7.5	19	FHJ	BCE
8LS6*	3	7.5	19	B(CJ)GH	AE
8LT8	1	7.5	18	H	EG
	1	7.5	18	F	EG
	3	7.5	19	BCJ	AE
8MD8	2	7.5	20	AJ	EG
	2	7.5	20	BH	EG
	2	7.5	20	CF	EG
8MU8	2	7.5	22	AJ	EH
	2	7.5	21	BCF	EG
8MV8	3	7.5	19	GH	EFJ
	1	7.5	20	BC	AE
8RHP1	2	7.5	22	AJ	EH
	3	7.5	20	CFG	BE
8SN7	2	7.5	26	AB	CG
	2	7.5	26	DE	FG
9A8	3	9.45	18	AJ	EH
	2	9.45	20	BCF	EG
9AH9*	3	9.45	28	BC	DM
	3	9.45	19	(EF)HJL	GM
9AK10	3	9.45	20	BL	CM
	3	9.45	20	EG	FM
	3	9.45	20	JK	DM
9AM10	3	9.45	20	JK	DM
	3	9.45	20	EG	FM
	3	9.45	20	BL	CM
9AQ8	1	9.45	18	AB	CD
	1	9.45	18	FG	DH
9AU7	2	4.7	25	FG	DEH
	2	4.7	25	AB	CDE
9BJ11	3	9.45	18	BCDF	EM
	3	9.45	18	GHJL	KM
9BR7	2	5	21	G	DEH
	2	5	21	F	DEH
	2	5	18	AB	CDE
9CL8	2	9.45	22	AB	CD
	2	9.45	22	FGJ	DH
9DK3*	3	9.45	18	(BG)	DN
9DZ8	1	9.45	20	AJ	EH
	3	9.45	20	CFG	BE
9EA8	2	9.45	20	BCF	EG
	2	9.45	20	AJ	EH
9ED4	1	7.5	26	HN	ABCEFGJ
Tube damaged if ABCEFG or J is moved.					
9EF6	1	9.45	17	CDE	BH
9GB8	2	9.45	22	FGH	EJ
	2	9.45	23	AB	CE
9GH8	2	9.45	17	AJ	EH
	2	9.45	17	BCF	EG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
9GV7	3	9.45	17	BCG	EFH
	3	9.45	22	AJ	EFH
9GV8	3	9.45	20	FGJ	EH
	2	9.45	21	AB	CE
9JW8	2	9.45	20	BCF	EG
	2	9.45	21	AJ	EH
9KC6	3	9.45	23	FGJ	AE
9KG6*	4	9.45	21	•	EJ
	•(AH)(BG)(CF)K				
9KX6*	3	9.45	18	B(CJ)GH	AE
9KZ8	3	9.45	20	BGF	CE
	3	9.45	19	AJ	EH
9LA6*	3	9.45	19	B(CJ)GH	AE
9MD8	2	9.45	20	AJ	EG
	2	9.45	20	BH	EG
	2	9.45	20	CF	EG
9MHH3	2	9.45	22	BE	CG
	2	9.45	22	AF	CG
9ML8	2	9.45	20	CF	EG
	2	9.45	20	BH	EG
	2	9.45	20	AJ	EG
9MN8	3	9.45	22	BL	CM
	3	9.45	22	DK	CM
	3	9.45	22	FH	CM
9MP12	3	9.45	22	AEF	BD
9RA6*	3	9.45	22	(BG)J	AE
9RAL1*	2	9.45	20	(BC)	EJ
	2	9.45	24	FG	EH
9U8	2	9.45	22	BCF	EG
	2	9.45	22	AJ	EH
9X8	2	9.45	20	GHJ	AEF
	2	9.45	21	BC	EF
No open element test on J.					
10	3	7.5	56	BC	D
10AF11	3	9.45	20	KL	BJM
	2	9.45	21	FH	EM
	2	9.45	21	CD	GM
10AL11	3	9.45	20	HKL	JM
	1	9.45	19	CDFG	BM
10BQ5	3	9.45	22	ABGJ	CD
10C8	2	9.45	24	FGH	EJ
	1	9.45	22	AB	CE
10CW5*	3	9.45	20	(AB)(FGH)J	CE
A, F or H is not used in some tubes.					
10DE7	3	9.45	22	ABC	DJ
	2	9.45	26	FG	DH
10DR7	3	9.45	16	ABC	EJ
	1	9.45	19	FG	EH
10DX8	3	9.45	20	HJ	EFG
	2	9.45	20	AB	CE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
10EB8	2	9.45	22	GHJ	EF
	1	9.45	20	BC	AE
10EG7	2	9.45	21	AB	CG
	1	9.45	21	DE	FG
10EM7	1	9.45	20	DE	FH
	3	9.45	19	AB	CH
10EW7	3	9.45	30	FG	EH
	3	9.45	19	ABC	EJ
10FD7*	1	9.45	21	FG	EH
	3	9.45	18	A(BC)	EJ
10FR7*	3	7.5	19	A(BC)	EJ
	3	7.5	30	FG	EH
10GF7	1	9.45	20	HJ	AE
	3	9.45	18	BF	CE
10GK6*	3	7.5	20	BGH	A(CJ)E
10GN8	3	9.45	19	GH	EFJ
	1	9.45	19	BC	AE
10GV8	2	9.45	21	AB	CE
	3	9.45	20	FGJ	EH
10HA6*	3	9.45	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
10HF8	3	9.45	19	GH	EFJ
	1	9.45	19	BC	AE
10JA5*	3	9.45	21	(BJ)(CK)F	DLM
Tube damaged if D or L is moved.					
10JA8	3	9.45	19	GH	EFJ
	2	9.45	20	BC	AE
10JT8	3	9.45	18	GH	EFJ
	1	9.45	19	BC	AE
10JY8	3	12.6	18	GH	EFJ
	3	12.6	18	BC	AE
10KR8	3	9.45	20	BC	AE
	3	9.45	20	GHJ	EF
10KU8	1	7.5	38	C	AE
	1	7.5	38	B	AE
	3	7.5	17	GHJ	EF
10L14	2	25	21	FG	EH
	2	25	21	AB	CE
10LB8	3	9.45	18	GH	EFJ
	2	9.45	25	BC	AE
10LD6*	2	9.45	21	•	AD
	•B(CJ)(FH)G				
10LE8	2	7.5	19	AHJ	BCE
	2	7.5	19	FHJ	CEG
10LM8	3	9.45	20	BCF	EG
	3	9.45	21	AJ	EH
10LW8	1	9.45	19	BC	AE
	3	9.45	20	GHJ	EF
10LY8	3	9.45	18	GHJ	EF
	1	9.45	18	BC	AE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
10LZ8	3	9.45	19	GH	EFJ
	2	9.45	20	Bc	AE
10P18*	3	50	19	(AB)(GH)J	CE
10T10	3	9.45	19	HK	JLM
	1	9.45	21	CEFG	BM
10Y	3	7.5	42	BC	D
10Z10	3	9.45	20	BJL	CM
	4	9.45	56	DEFG	HM
11AR11	3	12.6	18	JK	GHLM
	3	12.6	18	CE	BDFM
11BM8	1	9.45	20	CFG	BE
	1	9.45	20	AJ	EH
11BN11	3	12.6	18	CDEF	BM
	3	12.6	18	GHKL	HM
11BQ11	3	12.6	18	BCDE	FM
	3	12.6	19	GHJK	LM
11BT11	2	12.6	20	CJ	DM
	2	12.6	20	EG	FM
	3	12.6	20	BKL	FHM
11CA11	3	12.6	20	HKL	AJ
	3	12.6	20	DF	AE
	3	12.6	22	BC	AG
11CF11	3	12.6	19	CDE	FM
	3	12.6	19	BL	GM
	3	12.6	23	JK	HM
11CH11	3	12.6	17	BKL	FHM
	2	12.6	20	EG	FM
	2	12.6	20	CJ	EM
11CY7	3	9.45	20	ABC	DJ
	1	9.45	21	FG	DH
11DS5*	1	12.6	19	(AG)EF	BD
11FY7	1	12.6	21	KL	JM
	3	12.6	19	CE	GM
11HM7*	3	5	17	B(CJ)GH	ADE
11JE8	3	12.6	19	GHJ	EF
	2	12.6	20	BC	AE
11KV8	3	12.6	18	GHJ	EF
	2	12.6	20	BC	AE
11LQ8	3	9.45	18	BC	AE
	3	9.45	18	GHJ	EF
11LT8	1	12.6	18	H	GE
	1	12.6	18	F	GE
	3	12.6	19	BCJ	AE
11LY6*	3	9.45	19	B(CJ)GH	AE
11MS8	3	9.45	20	FGJ	EH
	2	9.45	21	AB	CE
11R3*	2	9.45	22	(BJ)	DN
12A	2	5	26	BC	D
12A4	2	6.3	20	BGJ	ADE
12A5	3	6.3	32	BCD	EF
12A6	3	12.6	32	CDE	GH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12A7	2	12.6	29	BCN	FG
	1	12.6	20	E	DG
12A8	2	12.6	28	CDN	GH
	2	12.6	36	EF	GH
12AB5*	3	12.6	30	(AH)(CF)J	EG
12AC6	1	12.6	21	ABEF	DG
12AC10	3	12.6	20	BL	CM
	3	12.6	20	EG	FM
	3	12.6	20	JK	DM
12AD6	1	12.6	20	AEFG	BC
12AD7	1	6.3	22	AB	CDE
	1	6.3	22	FG	DEH
12AE6	1	12.6	40	F	BC
	1	12.6	40	E	BC
	1	12.6	22	AG	BC
12AE7	1	6.3	19	AB	CDE
	1	6.3	19	FG	DEH
12AE10	1	12.6	20	HKL	JM
	3	12.6	21	CEFG	BM
12AF3	4	12.6	18	BJ	EN
12AF6	1	12.6	20	ABEF	DG
12AF11	3	12.6	20	KL	BJM
	2	12.6	21	FH	EM
	2	12.6	21	CD	GM
12AH7	3	12.6	30	AC	BG
	3	12.6	30	EF	DG
12AH8	2	6.3	20	ABFG	CDE
	2	6.3	23	GH	CDE
12AJ6	1	12.6	38	F	BC
	1	12.6	38	E	BC
	1	12.6	20	AG	BC
12AJ7	3	12.6	22	ABFG	CE
	2	12.6	24	HJ	CE
12AL5	1	12.6	22	G	AD
	1	12.6	22	B	DE
12AL8	1	12.6	38	BF	CEG
	1	12.6	22	A	EJ
12AL11	3	12.6	20	HKL	JM
	1	12.6	21	CDFG	BM
12AQ5*	3	12.6	32	(AG)EF	BD
12AS5	3	12.6	19	BEFG	AD
12AT6	3	12.6	26	AG	BC
	1	12.6	35	F	BC
	1	12.6	35	E	BC
12AT7	2	6.3	24	FG	HJ
	2	6.3	24	AB	CJ
12AU6	2	12.6	22	ABEF	DG
12AU7	2	6.3	25	FG	DEH
	2	6.3	25	AB	CDE
12AV5	3	12.6	18	AEH	BC

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12AV6	1	12.6	43	F	BD
	1	12.6	43	E	BD
	1	12.6	21	AG	BD
12AV7	2	6.3	21	FG	DEH
	2	6.3	22	AB	CDE
12AW6	2	12.6	22	AEFG	BD
No open element test on E.					
12AX3	3	12.6	23	DK	GM
12AX4	3	12.6	22	E	CG
12AX7	1	6.3	20	FG	DEH
	1	6.3	20	AB	CDE
12AY3	3	12.6	22	BG	EJ
J may show leakage.					
12AY7	1	6.3	22	FG	DEH
	1	6.3	22	AB	CDE
12AZ7	1	6.3	20	FG	DEH
	1	6.3	20	AB	CDE
12B4	2	6.3	21	BGJ	ADE
12B6	3	12.6	31	CN	GH
	1	12.6	58	D	GH
	1	12.6	58	E	GH
12B7	2	12.6	30	BCF	AH
12B8	2	12.6	26	CDN	AG
	3	12.6	26	EH	FG
12BA6	2	12.6	22	ABEF	DG
12BA7	3	12.6	18	AB	CEFGJ
	1	12.6	36	AFGJ	BCE
12BB14*	3	12.6	18	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
12BD6	2	12.6	27	ABEF	DG
12BE3	3	12.6	20	DK	GM
12BE6	2	12.6	24	EFG	BD
	2	12.6	24	A	BD
12BF6	2	12.6	34	AG	BD
	1	12.6	38	F	BD
	1	12.6	38	E	BD
12BF11	3	12.6	20	HKL	JM
	1	12.6	20	CEFG	BM
12BH7	2	6.3	21	FG	DEH
	2	6.3	21	AB	CDE
12BK5	2	12.6	22	ACGH	DF
12BK6	1	12.6	24	AG	BC
	1	12.6	32	E	BC
	1	12.6	36	F	BC
12BL6	1	12.6	20	AEF	BDG
Good tube reads above 30.					
12BN6	1	12.6	36	BEFG	AC
Good tube reads above 30.					
12BQ6	3	12.6	22	DEN	GH
12BR3*	4	12.6	18	(BJ)	EN

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12BR7	2	6.3	23	G	DEH
	2	6.3	23	F	DEH
	2	6.3	21	AB	CDE
12BS3*	2	12.6	20	(BG)	EJ
12BT3	3	12.6	21	DK	GM
12BT6	1	12.6	22	AG	BC
	1	12.6	29	E	BC
	1	12.6	29	F	BC
12BV7*	3	6.3	20	BGH	A(CJ)DE
12BV11	2	12.6	20	BCDF	EM
	2	12.6	20	GJKL	HM
12BW4	4	12.6	20	G	EJ
	4	12.6	20	A	EJ
12BY7*	3	6.3	22	BGH	A(CJ)DE
No open element test on G.					
12BZ6	1	12.6	18	AEFG	BC
No open element test on E & G.					
12BZ7	1	63	19	FG	DEH
	1	6.3	19	AB	CDE
12C5	3	12.6	17	BEFG	AC
12C8	1	12.6	38	D	GH
	1	12.6	38	E	GH
	3	12.6	41	CFN	GH
12CA4	2	12.6	22	A	CD
	2	12.6	22	G	CD
12CA5	3	12.6	22	BEFG	AC
12CK3*	3	12.6	18	(BG)	EJ
12CL3*	3	12.6	18	(BG)	EJ
12CM6*	3	12.6	26	A(CF)J	EG
12CN5*	2	12.6	42	FG	A(BE)C
12CR6	3	12.6	30	EFG	AC
	1	12.6	32	B	AC
12CS6	1	12.6	20	AF	BC
	1	12.6	25	EG	BC
12CT3*	3	12.6	18	(BF)	EJ
12CT8	2	12.6	22	AB	CD
	2	12.6	22	FGH	DJ
12CU5	3	12.6	18	BEFG	AD
12CU6	3	12.6	23	DEN	GH
12CX6	2	12.6	22	AE½BCG	
12CX8	1	12.6	23	BEF	ACG
12D4	3	12.6	21	E	CG
12DB5*	2	12.6	24	A(CF)J	(BG)D
12DF5	1	6.3	31	A	CJ
	1	6.3	31	F	HJ
12DJ8	2	12.6	20	AB	CE
	2	12.6	20	FG	EH
12DK6	3	12.6	22	AEF	BCG
12DK7	1	12.6	20	CG	BE
	1	12.6	30	F	BE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
	1	12.6	40	J	BE
12DL8	1	12.6	20	CFG	BE
	1	12.6	40	A	EH
	1	12.6	40	J	EH
12DM4	3	12.6	22	E	CH
12DQ6	3	12.6	23	DEN	GH
12DQ7	3	12.6	22	BCGHJ	AE
12DS7	1	12.6	40	J	EH
	1	12.6	40	A	EH
	1	12.6	20	CFG	EH
12DT5	3	12.6	24	ACFJ	EG
12DT6	1	12.6	20	AEFG	BD
12DT7	1	6.3	20	AB	CDE
	1	6.3	20	FG	DEH
12DT8	2	12.6	21	FG	EH
	2	12.6	21	AB	CE
12DV7	1	6.3	22	FG	DEH
	1	6.3	67	B	ADE
	1	6.3	67	C	ADE
12DV8	1	12.6	20	CFG	BE
	1	12.6	35	A	EH
	1	12.6	35	J	EH
12DW4*	3	12.6	20	(BG)	EJ
12DW5	1	12.6	21	ACFJ	EG
12DW7	1	6.3	20	FG	DEH
	2	6.3	24	AB	CDE
12DY8	2	12.6	21	HJ	EG
	2	12.6	20	ACF	BE
12DZ6	1	12.6	20	AF	BDG
12DZ7	3	12.6	22	ACD	GH
	3	12.6	22	DEF	GH
No open element test on C & F.					
12E5	3	12.6	30	CE	GH
12E13	3	6.3	21	CDE	GH
12EA6	1	12.6	20	AF	BDG
12EC8	1	12.6	40	B	ACE
	1	12.6	57	FG	EHJ
12ED5	3	12.6	20	BEFG	AD
12EF6	4	12.6	18	CDE	GH
12EG6	1	12.6	20	AEG	BD
	1	12.6	21	F	BD
12EH5	3	12.6	20	BEFG	AD
12EK6	1	12.6	21	EF	DG
	1	12.6	20	AB	DG
12EL6	1	12.6	20	AB	DG
	1	12.6	45	E	DG
	1	12.6	45	F	DG
12EM6	1	12.6	19	ACF	BE
	1	12.6	38	J	BE
12EN6	1	12.6	19	CDE	GH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12EQ7	2	12.6	22	ABFG	CE
	1	12.6	34	H	CE
Good tube reads above 25.					
12EZ6	1	12.6	18	AF	BDEG
	1	12.6	24	BE	DG
12F5	1	12.6	22	DN	GH
12F8	1	12.6	37	F	DG
	1	12.6	37	A	DG
	1	12.6	21	BCH	DGJ
12FK6	1	12.6	40	F	BD
	1	12.6	40	E	BD
	1	12.6	20	AG	BD
12FM6	1	12.6	55	G	ABD
	1	12.6	38	F	BD
	1	12.6	38	E	BD
12FQ7	2	12.6	23	FG	EH
	2	12.6	23	AB	CE
12FQ8	1	12.6	20	BC	AEFGHJ
	1	12.6	20	AB	CEFGHJ
	1	12.6	20	FG	ABCEHJ
	1	12.6	20	GH	ABCEFJ
12FR8	1	12.6	18	CFG	E
	1	12.6	20	AJ	BE
	1	12.6	44	H	BE
12FV7	3	6.3	19	FG	HJ
	3	6.3	19	AB	CJ
12FX5*	2	12.6	20	(BE)FG	AD
12FX8	1	12.6	25	CJ	EG
	1	12.6	19	FH	E
	1	12.6	19	AB	EG
12G11	1	12.6	20	CDFG	BM
	3	12.6	20	HKL	JM
12GB3	3	12.6	19	DE	GH
12GB7	3	12.6	18	DEN	GH
12GC6	3	12.6	20	DEHN	CG
12GE5*	3	12.6	19	B(CL)G	(DK)M
12GJ5*	3	12.6	20	(AG)(BF)N	CE
12GK17	3	12.6	22	E	CG
12GN7*	3	6.3	17	BH(CJ)	ADEG
12GT5*	3	12.6	19	(AG)(BF)J	CE
12GV5*	3	12.6	19	(CLG)(EJ)N	DKM
Tube damaged if D or K is moved.					
12GW6	3	12.6	20	DEN	GH
12H6	1	12.6	25	C	DG
	1	12.6	25	E	GH
12HB25*	3	12.6	19	•	EJ
	•(AB)(CH)(FG)N				
12HE7	3	6.3	18	EJL	HK
	1	6.3	19	B	DK
12HG7*	3	6.3	18	B(CJ)GH	AE

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12HL5*	3	12.6	18	(AB)GJ	CE
12HL7*	3	6.3	18	BGH(CJ)	ADE
12HU8	3	12.6	21	FHJ	EG
	3	12.6	21	ABC	EG
12J5	2	12.6	24	CE	GH
12J7	1	12.6	20	CDN	EGH
12J8	1	12.6	20	J	DG
	1	12.6	20	H	DG
	1	12.6	20	ACF	BD
12JB6*	3	12.6	19	(AG)(BF)HN	CE
12JF5*	3	12.6	20	B(CL)N	DKM
Tube damaged if D or K is moved.					
12JM6	3	12.6	20	CGL	BDKM
Tube damaged if D or K is moved.					
12JN6	3	12.6	20	CGL	BDKM
Tube damaged if D or K is moved.					
12JN8	3	12.6	20	GJ	EFH
	3	12.6	19	AB	CE
12JQ6*	1	12.6	23	F	DJ
	3	12.6	20	A(BC)(GH)	DJ
12SJ6*	3	12.6	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
12JT6*	3	12.6	20	(AG)BFJ	CE
12K5	1	12.6	20	BEFG	AD
12K7	3	12.6	34	CDN	EGH
12K8	1	12.6	22	EF	GH
	3	12.6	52	CDN	GH
12KG6*	4	12.6	21	•	EJ
	•(AH)(BG)(CF)N				
12KL8	1	12.6	48	H	CE
	2	12.6	20	ABFG	CE
12L6	3	12.6	22	CDE	GH
12LG8	3	12.6	20	CDE	BG
	3	12.6	22	AEH	BG
12MD8	2	12.6	20	AJ	EG
	2	12.6	20	BH	EG
	2	12.6	20	CF	EG
12ML8	2	12.6	20	CF	EG
	2	12.6	20	BH	EG
	2	12.6	20	AJ	EG
12MX8	3	12.6	20	BFG	CE
	1	12.6	28	HJ	AE
12Q7	1	12.6	20	CN	GH
	1	12.6	40	D	GH
	1	12.6	40	E	GH
12R5	3	12.6	28	BEFG	AC
12RK19*	3	12.6	20	(BJ)	EN
12RLL3	2	6.3	22	AB	CDE
	2	6.3	21	FG	DEH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
12RLL5	2	12.6	23	FG	EH
	2	12.6	23	AB	CE
12S8	1	12.6	27	FN	BH
	1	12.6	34	D	BH
	1	12.6	37	A	BH
	1	12.6	39	C	EH
12SA7	2	12.6	35	CH	FG
	2	12.6	25	DE	FG
12SC7	1	12.6	20	BC	FG
	1	12.6	20	DE	FG
12SF5	1	12.6	20	CE	BG
12SF7	1	12.6	40	E	CG
	3	12.6	30	BDF	CG
12SG7*	3	12.6	19	DFH	(CE)G
12SH7*	3	12.6	19	DFH	(CE)G
12SJ7	1	12.6	20	DFH	CEG
12SK7	3	12.6	28	CDFH	EG
12SL7	3	12.6	28	DE	FG
	3	12.6	28	AB	CG
12SN7	2	12.6	29	DE	FG
	2	12.6	29	AB	CG
12SQ7	1	12.6	50	E	CG
	1	12.6	50	D	CG
	1	12.6	22	BF	CG
12SR7	3	12.6	27	BF	CG
	1	12.6	36	E	CG
	1	12.6	48	D	CG
12SW7	2	12.6	26	BF	CG
	1	12.6	43	D	CG
	1	12.6	43	E	CG
12SX7	2	12.6	25	DE	FH
	2	12.6	25	AB	CH
12SY7	2	12.6	32	ACH	FG
	2	12.6	26	DE	FG
12T10	3	12.6	19	HK	JLM
	1	12.6	20	CEFG	BM
12U7	1	6.3	25	AB	CDE
	1	6.3	25	FG	DEH
12V6	3	12.6	27	CDE	GH
12W6	3	12.6	21	CDE	GH
12X4	1	12.6	21	F	DG
	1	12.6	21	A	DG
12Z3	3	12.6	25	B	CD
13CM5*	3	12.6	19	(AD)EN	CHG
Tube damaged if C or H is moved.					
13CW4	1	12.6	18	BD	HM
13DE7	1	12.6	20	FG	EH
	1	12.6	18	ABC	EJ
13DR7	3	12.6	16	ABC	EJ
	1	12.6	19	FG	EH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
13EM7	1	12.6	22	DE	FH
	3	12.6	19	AB	CH
13FD7*	3	12.6	18	A(BC)	EJ
	1	12.6	21	FG	EH
13FM7*	1	12.6	20	KL	JM
	3	12.6	19	(CH)E	GM
13FR7	3	12.6	19	ABC	EJ
	3	12.6	30	FG	EH
13GB5*	3	12.6	19	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
13GC8	2	12.6	21	AB	CE
	2	12.6	21	FHJ	EG
13GF7	3	12.6	18	BF	CE
	1	12.6	20	HJ	AE
13J10	3	12.6	20	BJL	CM
	4	12.6	68	DEFG	HM
13JZ8*	3	12.6	20	D(FG)H	JM
	1	12.6	21	BK	LM
13V10	2	12.6	24	CFG	BEM
	3	12.6	23	HKL	JM
13Z10	3	12.6	20	BJL	CM
	4	12.6	68	DEFG	HM
14	2	12.6	30	BCN	DE
14A4	2	12.6	26	BF	GH
14A5	3	12.6	33	BCF	GH
14A7	2	12.6	30	BCDF	GH
14AF7	3	12.6	25	EF	BCDGH
	3	12.6	25	CD	BEFGH
14B6*	1	12.6	20	BC	(DG)H
	1	12.6	40	E	(DG)H
	1	12.6	40	F	(DG)H
14B8	2	12.6	34	CD	GH
	2	12.6	30	BEF	GH
14BL11	2	12.6	20	CJ	DM
	2	12.6	20	EG	FM
	2	12.6	20	BKL	HM
14BR11	2	12.6	20	BCL	DM
	2	12.6	20	FH	EM
	2	12.6	20	JK	GM
14C5	3	12.6	25	BCF	GH
14C7	2	12.6	28	BCF	DGH
14E6*	3	12.6	31	BC	(DG)H
	1	12.6	65	E	(DG)H
	1	12.6	65	F	(DG)H
14E7	2	12.6	28	BEF	GH
	1	12.6	58	C	GH
	1	12.6	58	D	GH
14F7	1	12.6	20	CD	BH
	1	12.6	20	EF	GH
14F8	3	12.6	22	AC	DG
	3	12.6	22	FH	EG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
14GT8	1	12.6	20	HJ	EG
	1	12.6	20	F	AE
	1	12.6	20	B	CE
14GW8	3	12.6	20	CFH	EG
	1	12.6	20	AJ	BE
14H7	2	12.6	22	BCF	DGH
14J7	2	12.6	32	CDE	FGH
	3	12.6	33	BEF	GH
14JG8	2	12.6	23	HJ	EG
	1	12.6	19	F	AE
	1	12.6	19	B	CE
14N7	2	12.6	26	CD	BH
	2	12.6	26	EF	GH
14Q7	2	12.6	25	CD	GH
	2	12.6	30	BEF	GH
14R7	1	12.6	18	BEF	GH
	1	12.6	50	C	GH
	1	12.6	50	D	GH
14S7	2	12.6	28	CD	GH
	2	12.6	24	BEF	GH
14V7	3	12.6	18	BCF	DGH
14W7*	2	12.6	22	BCF	(DG)EH
14X7	1	12.6	20	BC	DGH
	1	12.6	20	E	DGH
	2	12.6	24	F	DGH
Good tube reads above 30.					
14Y4	3	12.6	28	C	GH
	3	12.6	28	F	GH
14Z3	3	12.6	25	B	CD
15	2	2	36	BCN	DE
15A6	1	12.6	20	ABFG	CE
15A8	2	12.6	24	DEN	BF
	2	12.6	27	CH	AB
15AF11	3	12.6	20	KL	BJM
	2	12.6	21	FH	EM
	2	12.6	21	CD	GM
15BD11	3	12.6	20	KL	BJM
	2	12.6	20	FH	EM
	2	12.6	21	CD	GM
15CW5*	3	12.6	20	(AB)(FGH)J	CE
A, F or H is not used in some tubes.					
15DQ8	2	12.6	20	AB	CE
	3	12.6	20	FHJ	EG
15EA7	1	12.6	20	DE	FH
	3	12.6	19	AB	CH
15EW6	2	12.6	20	AEFG	BD
15EW7	3	12.6	19	A(BC)	EJ
	3	12.6	30	FG	EH
15FM7*	3	12.6	19	(CH)E	GM
	1	12.6	20	KL	JM
15FY7	1	12.6	21	KL	JM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
	3	12.6	19	CE	GM
15HA6*	3	12.6	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
15HB6*	3	12.6	18	B(FH)	AE
	1	12.6	24	(CJ)G	AE
15KY8	1	12.6	28	HJ	AE
	3	12.6	20	BFG	CE
15LE8	2	12.6	19	AHJ	BCE
	2	12.6	19	FHJ	CEG
15MF8*	3	12.6	19	D(FG)H	JM
	1	12.6	19	BK	LM
15MX8	1	12.6	28	HJ	AE
	3	12.6	20	BFG	CE
16A	1	6.3	22	AEG	BD
16A5	3	12.6	18	BGJ	CD
16A8	2	12.6	20	CFG	BE
	3	12.6	26	AJ	EH
16AK9	3	7.5	21	EHJ	FG
	3	7.5	22	KL	FG
	3	7.5	30	BC	FG
16AQ3	3	19.6	20	ABCFGHJ	EN
No element test on top levers.					
16BQ11	3	12.6	18	BCDE	FM
	3	12.6	19	GHJK	LM
16BX11	2	12.6	21	GH	JM
	2	12.6	20	EF	DM
	2	12.6	20	BC	KLM
16CB28*	3	12.6	18	•	AB
	•(CL)(DK)(EJ)N				
16GK6*	2	19.6	20	BGH	A(CJ)E
16GY5*	3	12.6	18	C(EJ)GLN	(DK)M
16HB5*	3	12.6	18	B(CL)G	DKM
Tube damaged if D or K is moved.					
16KA6*	3	12.6	19	C(DL)EN	KM
16KH8	3	12.6	24	AB	DG
	3	12.6	20	BCJ	DG
	3	12.6	20	FHJ	DG
16LD6*	2	12.6	21	B(CJ)(FH)G	AD
16LU8*	1	12.6	19	BK	LM
	3	12.6	19	D(FG)H	JM
16MY8*	3	12.6	19	D(FG)H	JM
	1	12.6	19	BK	LM
17	3	12.6	40	BC	DE
17A8	2	12.6	20	BCF	EG
	2	12.6	18	AJ	EH
17AB10	4	19.6	55	DEFG	HM
	3	19.6	19	BJL	CM
17AV5	3	12.6	24	AEH	BC
17AX3	3	19.6	23	DK	GM
17AX4	3	12.6	28	E	CH

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
17AY3	3	19.6	21	**BG**	**EJ**
J may show leakage.					
17BB14*	3	12.6	18	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
17BE3	3	19.6	20	**DK**	**GM**
17BF11	3	19.6	20	HKL	**JM**
	1	19.6	20	CEFG	**BM**
17BH3*	3	12.6	22	(BG)	**EJ**
17BQ6	3	12.6	21	DEN	**GH**
17BR3*	4	19.6	18	(BJ)	**EN**
17BS3*	2	12.6	20	(BG)	**EJ**
17BW3*	4	12.6	21	(DK)	**GM**
17BZ3*	3	12.6	20	(DK)	**GM**
17C5*	3	12.6	24	(BE)FG	**AC**
17C9	2	19.6	20	GHJ	**EF**
	2	19.6	20	ABC	**EK**
17CA5	3	12.6	22	**BEFG**	**AD**
17CK3*	3	12.6	18	(BG)	**EJ**
17CL3*	3	12.6	18	(BG)	**EJ**
17CT3*	3	19.6	18	(BF)	**EJ**
17CU5	3	12.6	19	**BEFG**	**AD**
17D4	3	12.6	21	E	**CG**
17DE4	3	19.6	22	E	**CH**
17DM4	3	19.6	21	E	**CH**
17DQ6	3	12.6	24	DEN	**GH**
17DW4*	3	12.6	20	(BG)	**EJ**
17EW8	2	19.6	20	FG	**DH**
	2	19.6	20	AB	**CD**
17GE5*	3	19.6	19	B(CL)G	(DK)**M**
17GJ5*	3	19.6	20	(AG)(BF)N	**CE**
17GT5*	3	19.6	19	(AG)(BF)J	**CE**
17GV5*	3	19.6	19	CGL(EJ)N	(DK)**M**
17GW6	3	19.6	20	DEN	**GH**
17H3	3	12.6	28	**CH**	**AE**
17HB25*	3	19.6	19	•	**EJ**
	•(AB)(CH)(FG)N				
17HC8	3	19.6	23	CFG	**BE**
	3	19.6	26	AJ	**EH**
17JB6*	3	19.6	19	(AG)(BF)HNCE	
17JF6*	3	12.6	18	(AG)(BF)HNCE	
17JG6*	3	12.6	18	(AG)BJ	**CEF**
17JM6	3	12.6	20	CEN	**BDKM**
Tube damaged if D or K is moved.					
17JN6	3	12.6	20	CGL	**BDKM**
Tube damaged if D or K is moved.					
17JQ6*	1	12.6	23	F	**DJ**
	3	12.6	20	A(BC)(GH)	**DJ**
17JR6*	3	19.6	18	(AG)BJ	**CEF**
17JT6*	3	12.6	20	(AG)BFJ	**CE**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
17JZ8*	3	19.6	19	D(FG)H	**JM**
	1	19.6	20	BK	**LM**
17KV6*	3	12.6	18	(AG)BFJ	**CE**
17L6	3	12.6	24	CDE	**GH**
17LD8	1	12.6	28	HJ	**AE**
	3	12.6	20	BFG	**CE**
17R5	3	12.6	24	**BEFG**	**AC**
17RHH2	2	19.6	20	AB	**CD**
	2	19.6	20	FG	**DH**
17RK19*	4	19.6	18	(BJ)	**EN**
17X10	4	19.6	55	DEFG	**HM**
	3	19.6	19	BJL	**CM**
17Z3	4	12.6	18	**BJ**	**DN**
18	3	12.6	31	BCD	**EF**
18A5	2	12.6	24	AEH	**CG**
18AJ10	3	19.6	22	HKL	**JM**
	1	19.6	20	CEFG	**BM**
18DZ8	1	19.6	20	AJ	**EH**
	3	19.6	20	CFG	**BE**
18FW6	2	19.6	21	ABEF	**DG**
18FX6	2	19.6	25	EFG	**BD**
	2	19.6	22	AFG	**BD**
18FY6	1	19.6	50	F	**BD**
	1	19.6	50	E	**BD**
	1	19.6	20	AG	**BD**
18GB5*	3	19.6	19	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
18GD6	2	19.6	20	ABEF	**DG**
18GV5*	3	19.6	19	(CGL)(EJ)N	DKM
Tube damaged if D or K is moved.					
18GV8	3	19.6	20	FGJ	**EH**
	2	19.6	21	AB	**CE**
18HB8	1	19.6	20	AC	**BE**
	3	19.6	22	FGJ	**EH**
18J6	1	19.6	23	AF	**BDEG**
	1	19.6	23	BE	**ADFG**
18RAL1*	2	19.6	20	(BC)	**EJ**
	2	19.6	24	FG	**EH**
19	3	2	37	BC	**F**
	3	2	39	DE	**F**
19A3	3	7.5	21	E	**FG**
19AJ8	2	19.6	22	ABFG	**CE**
	2	19.6	23	HJ	**CE**
19AQ5*	3	19.6	27	(AG)EF	**BD**
19AU4	4	19.6	22	E	**CH**
19BG6	3	19.6	26	EHN	**CG**
19C8	1	19.6	19	A	**EG**
	1	19.6	19	F	**EG**
	1	19.6	20	HJ	**EG**
	1	19.6	20	B	**CE**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
19CG3*	3	19.6	18	(DK)	**GM**
19CL8	2	19.6	21	FGJ	**DH**
	2	19.6	21	AB	**CD**
19DC8	1	19.6	36	H	**CE**
	1	19.6	36	G	**CE**
	2	19.6	22	ABFJ	**CE**
19DE3*	3	19.6	18	(DK)	**MN**
19DE7	2	19.6	26	FG	**DH**
	3	19.6	22	A(BC)	**DJ**
19DK3*	3	19.6	18	(BG)	**DN**
19DQ3*	3	19.6	18	(DK)	**GM**
19EA8	2	19.6	20	BCF	**EG**
	2	19.6	20	AJ	**EH**
19EZ8	1	19.6	20	HJ	**D**
	1	19.6	20	FG	**D**
	1	19.6	20	BC	**AD**
19FL8	2	19.6	22	ABFJ	**CE**
	1	19.6	42	G	**CE**
	1	19.6	42	H	**CE**
19FX5*	2	19.6	20	(BE)FG	**AD**
19GQ7	1	19.6	20	B	**AE**
	1	19.6	20	H	**EJ**
	1	19.6	20	F	**EG**
19HR6	3	19.6	18	ABEF	**DG**
19HS6	1	19.6	21	BEF	**DG**
	1	19.6	19	A	**DG**
19HV8	2	19.6	21	GJ	**EFH**
	1	19.6	21	AB	**CE**
19J6	2	19.6	24	BE	**CG**
	2	19.6	24	AF	**CG**
19JC6	2	19.6	19	BGHJ	ACE
Tube damaged if A or C is moved.					
19JN8	3	19.6	19	FGJ	**EH**
No open element test on F.					
	2	19.6	20	AB	**CE**
19KF6*	3	19.6	19	(AG)BFJ	**CE**
19KG8	3	19.6	19	GJ	**EFH**
	3	19.6	19	BA	**CE**
19MR9	2	19.6	20	ABEF	**DG**
19Q9	3	19.6	19	AB	**CEK**
	3	19.6	19	HJ	**EG**
19T8	1	19.6	21	HJ	**CEG**
	1	19.6	20	F	**CEG**
	1	19.6	20	B	**CEG**
	1	19.6	20	A	**CEG**
19U3	3	19.6	21	J	**CD**
19V8	1	19.6	19	B	**CE**
	1	19.6	19	G	**EH**
	1	19.6	22	AF	**CE**
	1	19.6	36	J	**CE**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
19W3	3	19.6	21	J	CD
19X3	3	19.6	18	J	CD
19X8	2	19.6	22	BC	DF
	2	19.6	21	AGHJ	DF
19Y3*	3	19.6	20	(AGJ)	CE
20	2	6.3	48	BC	D
20AQ3	3	19.6	20	ABCFGHJ	EN
No element test on top levers.					
20D4	2	6.3	22	ABFG	CE
	2	6.3	23	HJ	CE
20EQ7	1	19.6	34	H	CE
Good tube reads above 25.					
	2	19.6	22	ABFG	CE
20EW7*	3	19.6	30	FG	EH
	3	19.6	19	A(BC)	EJ
20EZ7	1	9.45	20	GH	CJ
	1	9.45	20	EF	CD
20J8	1	19.6	19	CDEN	GH
	1	19.6	20	EF	GH
20LF6*	3	19.6	18	•	BM
	•(CL)(DK)(EJ)N				
21A6	3	19.6	16	ABFGHJN	CE
No open element test on N.					
21EX6	3	19.6	16	EHN	CG
21GY5*	3	19.6	18	(CGL)(EJ)N	(DK)M
21HA6*	3	25	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
21HB5*	3	19.6	18	B(CL)G	(DK)M
21HD5*	3	19.6	19	(CL)(EJ)G	DKM
Tube damaged if D or K is moved.					
21HJ5*	3	19.6	18	(CL)(EJ)G	BDKM
Tube damaged if D or K is moved.					
21JS6*	3	25	19	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
21JV6*	3	19.6	18	(DK)CGL	BM
21JZ6*	3	19.6	18	(DK)CEN	BM
21KA6*	3	19.6	19	C(DL)EN	KM
21KQ6*	3	19.6	19	•	EJ
	•(AH)(BG)(CF)N				
21LG6*	3	19.6	20	(CL)(EJ)N	DKM
Tube damaged if D or K is moved.					
21LR8	3	19.6	19	BFG	CE
	1	19.6	19	HJ	AE
21LU8*	3	19.6	19	D(FG)H	JM
	1	19.6	19	BK	LM
21MY8*	3	19.6	19	D(FG)H	JM
	1	19.6	19	BK	LM
22	1	2.5	56	BCN	D
22BH3	3	25	22	BG	EJ

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
22BW3*	4	19.6	21	(DK)	GM
22DE4	3	25	22	E	CH
22JF6*	3	19.6	18	(AG)(BF)HN	CE
22JG6*	3	25	18	(AG)BJ	CEF
22JR6*	3	25	18	(AG)BJ	CEF
22JU8*	3	19.6	17	(AG)(BF)HN	CE
22KM6*	3	25	18	(AG)(BF)HN	CE
22KV6*	3	19.6	18	(AG)BFJ	CE
22JS6*	3	25	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
23MB6	3	25	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
23Z9	**IMPORTANT** = Due to several different filament center tap arrangements, data for this tube has been discontinued. Attempts at testing may cause filament burnout on some tubes. Therefore, we recommend direct substitution as the only safe test.				
24A	2	2.5	32	BCN	DE
24AX4	3	25	20	E	CH
24BF11	3	25	20	HKL	JM
	1	25	20	CEFG	BM
24GA7*	3	25	20	(BC)DG	EM
	3	25	24	L	HM
24JE6*	3	25	19	(AG)(BF)HN	CE
24JZ8*	3	25	19	D(FG)H	JM
	1	25	20	BK	LM
24LQ6*	3	25	17	(AG)(BF)HN	CE
24LZ6*	3	25	19	(AG)(BF)N	CE
25A6	3	25	27	CDE	GH
25A7	3	25	27	CDE	GH
	3	25	23	F	AG
25AC5	3	25	31	CE	GH
25AV5	3	25	18	AEH	BC
25AX4	3	25	20	E	CH
25B5	3	25	37	BD	EF
	3	25	46	CD	BEF
25B6	3	25	23	CDE	GH
25B8	2	25	25	CDN	AG
	2	25	25	EH	FG
25BB14*	3	25	18	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
25BK5	2	25	21	ACGH	DF
25BQ6	2	25	21	DEN	GH
25C5	2	25	20	BEFG	AD
25C6	3	25	25	CDE	GH
25CA5	3	25	17	BEFG	AD
25CD6	3	25	20	EHN	BC
25CG3*	3	25	18	(DK)	GM
25CK3*	3	25	18	(BG)	EJ

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
25CM3*	3	25	17	(BG)	EJ
25CT3*	3	25	18	(VF)	EJ
25CU6	3	25	23	DEN	GH
25D8	2	25	26	EF	AG
	2	25	26	CDN	AG
	1	25	22	H	AG
25DK3*	3	25	18	(BG)	DN
25DK4	4	25	26	E	CG
25DL3*	3	25	18	(BG)	DN
25DN6	3	25	17	EHN	CG
25DQ6	3	25	24	DEN	GH
25DT5	3	25	22	ACFJ	EG
25E5*	3	25	18	(AD)EN	CGH
Tube damaged if C or H is moved.					
25EC6	3	25	20	EHN	BC
25EH5	3	25	20	BEFG	AD
25F5	2	25	22	BEFG	AD
25GB6	3	25	21	DEK	GH
25GF6	3	25	16	DEN	GH
25HX5*	3	25	18	(AG)FJ	BCE
Tube damaged if B or C is moved.					
25JQ6*	3	25	20	A(BC)(GH)	DJ
	1	25	23	F	DJ
25JZ8*	3	25	19	D(FG)H	JM
	1	25	20	BK	LM
25KA6*	3	25	19	C(DL)EN	KM
25L6	3	25	22	CDE	GH
25MP20	3	25	20	AEF	BD
25N6	2	25	30	CDE	GH
25RK19*	4	25	18	(BJ)	EN
25W4	3	25	18	E	CG
25W6	3	25	17	CDE	BH
25X6	3	25	27	C	DG
	3	25	27	E	GH
25Y4	3	25	25	E	GH
25Y5	3	25	30	B	CF
	3	25	30	E	DF
25Z5	3	25	25	B	CF
	3	25	25	E	DF
25Z6	3	25	24	C	DG
	2	25	24	E	GH
26	2	1.4	38	BC	D
26A6	2	2.5	22	ABEF	DG
26A7	2	25	20	CDE	BG
	2	25	20	AEH	BG
26AQ8	2	25	21	FG	EH
	2	25	21	AB	CE
26C6	3	25	30	AG	BDEF
	1	25	36	E	ABDFG
	1	25	36	F	ABDEG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
26D6	2	25	22	AF	BCED
	1	25	40	EFG	ABC
26DQ6*	1	25	19	(AE)(DH)N	CFG
Tube damaged if C or F is moved.					
26DQ6	3	25	22	DEN	GH
26HU5*	3	25	19	(AE)CN	BFH
Tube damaged if B or F is moved.					
26LW6*	3	25	17	(AE)CN	BFG
Tube damaged if B or F is moved.					
26LX6*	3	25	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
26Z5	4	25	18	F	HJ
	4	25	18	A	CJ
27	2	2.5	32	BC	DE
27GB5*	3	25	19	(AB)(FG)N	CEH
Tube damged if C or H is moved.					
27KG6*	4	25	21	•	EJ
	•(AH)(BG)(CF)N				
27LF6*	3	25	18	•	BM
	•(CL)(DK)(EJ)N				
28D7	2	25	22	BCD	FH
	2	25	22	CEG	FH
28EC4*	3	25	19	(BGH)	EN
28GB5*	3	25	19	(AB)(FG)N	CEH
Tube damged if C or H is moved.					
28HA6*	3	25	19	BG(FH)	ACEJ
Tube damaged if C or J is moved.					
28HD5*	3	25	19	(CL)(EJ)G	DKM
Tube damaged if D or K is moved.					
28Z5	3	12.6	38	C	GH
	3	12.6	38	F	GH
29	2	2.5	36	BC	DEF
29GK6*	2	25	20	BGH	A(CJ)E
Tube damaged if C or J is moved.					
29KQ6*	3	30	19	•EJ	
	•(AH)(BG)(CF)N				
29LE6*	3	25	19	•	DJ
	•(AH)(BF)(CF)				
30	2	2	35	BC	D
30A5	3	32	16	BEFG	AC
30AE3	3	32	20	ABCFGHJ	EN
No element test on top levers.					
30AG11	1	25	20	C	BM
	1	25	20	K	LM
	2	25	20	EF	DM
	2	25	20	GH	JM
30C18	3	7.5	17	BCG	EFH
	3	7.5	22	AJ	EFH
Tube damaged if F or H is moved.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
30CW5*	3	32	20	•	CE
	•(AB)(FJ)(GH)				
A, F or H is not used in some tubes.					
30HD5*	3	25	19	(CL)(EJ)G	DKM
Tube damaged if D or K is moved.					
30HJ5*	3	32	18	(CL)(EJ)G	BDKM
Tube damaged if D or K is moved.					
30JZ6*	3	32	18	(DK)CEN	BM
30KD6*	3	25	17	•	BM
	•(CL)(DK)(EJ)N				
30KG6*	4	25	21	•	EJ
	•(AH)(BG)(CF)				
30LE6	3	32	17	(AE)CN	BFG
Tube damaged if B or F is moved.					
30MB6*	3	32	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
30MP23*	3	32	20	(BE)FG	AC
30MP27*	3	32	20	(BE)FG	AC
30PL12	3	12.6	26	AJ	EH
	2	12.6	20	CFG	BE
31	2	2	40	BC	D
31AL10	2	12.6	24	BC	FG
	2	12.6	21	DEH	FG
	3	12.6	23	JL	FK
31JS6*	3	32	18	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
31LQ6*	3	32	17	(AG)(BF)HN	CE
31LR8	3	32	19	BFG	CE
	1	32	19	HJ	AE
31LZ6*	3	32	19	(AG)(BF)N	CE
32	2	2	42	BCN	D
32A8	1	32	20	CFG	BE
	1	32	20	AJ	EH
32ET5*	3	32	25	(BE)FG	AD
32GA7*	3	32	20	(BC)DG	EM
	3	32	24	L	HM
32HQ7	3	19.6	20	EJL	AHM
	1	19.6	20	B	ADM
32L7	3	32	21	CDE	GH
	3	32	18	F	AG
33	3	2	39	BCD	E
33GT7*	3	12.6	20	E(JL)K	AHM
	3	12.6	21	B	ADM
33GY7*	3	12.6	19	E(JK)L	AHM
	3	12.6	21	B	ADM
33HE7	3	32	18	EJL	HM
	1	32	19	B	DM
33JR6*	3	32	18	(AG)BJ	CEF
33JV6*	3	32	18	(DK)CGL	BM

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
34	2	2	40	BCN	D
34CD3*	3	32	18	(DK)	GM
34CE3*	1	32	18	(DK)	GM
34CM3*	3	32	17	(BG)	EJ
34DK3*	3	32	18	(BG)	DN
34GD5	3	32	21	BEFG	AD
34R3*	3	32	20	(BJ)	DN
35(51)	2	2.5	30	BCN	DE
35A5	3	32	22	BCF	GH
35B5	3	32	23	AEFG	BD
35C5	3	32	24	BEFG	AC
35CD6	3	32	17	EHN	BC
35DZ8	3	32	20	CFG	BE
	1	32	20	AJ	EH
35EH5	3	32	20	BEFG	AD
35GL6	2	32	22	BEG	AD
A normally shows leakage.					
35HB8	1	32	20	AC	BE
	3	32	22	FGJ	EH
35L6	3	32	20	CDE	GH
35LR6*	3	32	17	(CL)(EJ)N	BDKM
Tube damaged if D or K is moved.					
35W4	3	32	20	E	DFG
35Y4	3	32	23	B	GH
35Z3	3	32	22	B	GH
35Z4	3	32	20	E	GH
35Z5	3	32	21	E	GH
35Z6	3	32	20	C	DG
	3	32	20	E	GH
36	2	6.3	32	BCN	DE
36AM3	4	32	22	E	CG
36KD6*	3	32	18	•	BM
	•(CL)(DK)(EJ)N				
36LW6*	3	32	17	(AE)CN	BFG
36MC6*	3	32	18	(AG)(BF)HN	CD
37	3	6.3	37	BC	DE
38	3	6.3	36	BCN	DE
38A3*	3	32	21	(AFJ)	CD
38HE7	3	19.6	18	EJL	HK
	1	19.6	19	B	DK
38HK7	3	19.6	18	EJL	HK
	1	19.6	18	B	DK
39(44)	2	6.3	30	BCN	DE
40	1	5	28	BC	D
40FR5	3	32	22	BEFG	AD
40KD6*	3	32	17	•	BM
	•(CL)(DK)(EJ)N				
40KG6*	4	32	21	•	EJ
	•(AH)(BG)(CF)N				
40SUA	2	2	39	CDN	G

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
40Z5	3	32	20	E	BCH
(45Z5)					
41	3	6.3	32	BCD	EF
42	3	6.3	29	BCD	EF
42EC4*	3	32	19	(BGH)	EN
42KN6*	3	19.6	17	•	BG
	•(CL)(DK)(EJ)N				
43	3	25	31	BCD	EF
45	3	2.5	32	BC	D
45B5*	3	50	19	(AB)(GH)J	CE
45Z3	3	50	24	BF	DG
46	3	2.5	35	BCD	E
47	3	2.5	41	BCD	E
48	3	32	25	BCD	EF
49	2	2	38	BCD	E
50	3	7.5	42	BC	D
50A5	3	50	20	BCF	GH
50B5	3	50	20	AEFG	BD
50BK5	2	50	21	ACGH	DF
50BM8	1	50	20	CFG	BE
	1	50	20	AJ	EH
50C5	3	50	22	BEFG	AC
50C6	3	50	22	CDE	GH
50CA5	3	50	22	BEFG	AC
50CD4	3	50	23	E	CG
50EH5	3	50	20	BEFG	AD
50FA5	3	50	22	BEFG	AD
A normally shows leakage.					
50FE5	3	50	22	CDE	BH
50FK5	3	50	24	BEG	AC
50GY7*	3	25	19	E(JK)L	AHM
	25	21	B	ADM	
50HC6	3	50	19	BEG	AC
50HK6	3	50	20	BEG	AC
50JY6*	3	50	19	(AD)CEN	GH
50L6	3	50	21	CDE	GH
50X6	3	50	19	C	BH
	3	50	19	F	GH
50Y6	3	50	23	C	DG
	3	50	23	E	GH
50Y7	3	50	20	C	BD
	3	50	20	E	BH
50Z6	3	50	21	C	DG
	3	50	21	E	GH
50Z7	3	50	25	C	DFG
	3	50	25	E	FGH
52	3	6.3	30	BCD	E
53	3	2.5	32	BC	DG
	3	2.5	32	EF	DG

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
53HK7	3	25	18	EJL	HK
	1	25	18	B	DK
55	2	2.5	32	BN	EF
	1	2.5	49	C	EF
	1	2.5	40	D	EF
56	2	2.5	30	BC	DE
57	2	2.5	30	BCN	DEF
57A(AS)	3	6.3	34	BCN	DEF
58	3	2.5	35	BCN	DEF
58AS	3	6.3	35	BCN	DEF
58HE7	1	50	19	B	DM
	3	50	18	EJL	HM
59	3	2.5	29	BCDE	FG
60FX5	2	50	22	BEFG	AD
64	1	6.3	22	BCN	DE
65	2	6.3	28	BCN	DE
67	3	6.3	37	BC	DE
68	3	6.3	37	BCN	DE
70A7	3	70	23	CDE	FGH
A shows short.					
	3	70	20		AFG
Allow tube to heat up. Move levers F & G to top position. Good tube will kick to 70.					
70L7	3	70	18	CDE	FG
	3	70	17	H	AG
71A	3	5	47	BC	D
72	4	2.5	35	N	D
75	1	6.3	20	BN	EF
	1	6.3	38	C	EF
	1	6.3	38	D	EF
76	2	6.3	33	BC	DE
77	3	6.3	30	BCN	DEF
78	3	6.3	31	BCN	DEF
79	3	6.3	30	BC	DF
	3	6.3	30	EN	DF
80	3	5	55	B	D
	3	5	55	C	D
81	3	7.5	75	B	D
82(82V)	3	2.5	24	B	D
	3	2.5	24	C	D
83(83V)	3	5	26	B	D
	3	5	26	C	D
84	3	6.3	26	B	DE
	3	6.3	26	C	DE
85	3	6.3	45	BN	EF
	1	6.3	47	C	EF
	1	6.3	47	D	EF
86M	3	6.3	37	CE	GH
87S	2	6.3	33	BCN	DEF
88	3	5	26	B	D
	3	5	26	C	D

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
88M	3	6.3	31	CDN	EGH
88S	3	6.3	32	BCN	DEF
89	3	6.3	32	BCN	EF
89RS	3	6.3	36	BN	CEG
	1	6.3	24	D	CG
	1	6.3	24	F	CG
95	3	2.5	36	BCD	EF
98	3	6.3	26	B	DE
	3	6.3	26	C	DE
99	2	2.5	65	BC	D
(99XX99)					
99V	2	2.5	65	AC	D
(V99)					
113HY	1	1.4	45	BC	E
(123HY)					
114HY	3	1.4	55	N	G
115HY	1	1.4	45	BCD	E
(145HY)					
117L7/	3	110	20	F	AG
M7	3	110	25	CDE	GH
117N7	3	110	20	CDE	FGH
	3	110	15		GH
Allow tube to heat up. Move lever G to top position. Good tube will kick to 70.					
117P7	3	110	22	CDE	FGH
	3	110	15		GH
Allow tube to heat up. Move lever G to top position. Good tube will kick to 70.					
117Z3	3	110	24	AE	DF
117Z4	3	110	19	E	GH
117Z6	3	110	20	C	DG
	3	110	20	E	GH
128A/	4	2.5	20	BC	DE
2523N1					
163PEN	3	12.6	18	BGJ	CD
182B	3	5	37	BC	D
(482B)					
183	3	5	40	BC	D
(483)					
201B	2	5	45	BC	D
201C	2	5	45	BC	D
210T	3	7.5	56	BC	D
230S	2	2	35	BC	D
232	2	2	42	BCN	D
233S	3	2	39	BCD	E
234S	2	2	40	BCN	D
257A	2	2.5	41	BN	D
262B	3	7.5	42	BN	CD

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
274A	3	5	36	B	**D**
	3	5	36	C	**D**
300B	3	5	21	BC	D
310B	2	7.5	28	BCD	**AE**
313C	4	Off	45	B	**A**
313CB	4	Off	53	B	AD
313CD	4	Off	44	B	AD
348A	1	6.3	24	CDEN	**BH**
376B	4	Off	37	E	**BG**
393A	4	2.5	20	DN	**AB**
396A	2	6.3	23	CD	**BFGHJ**
	2	6.3	23	FG	**BCDHJ**
403B	2	6.3	22	AEF	**BCG**
Tube damaged if B or G is moved.					
407A	1	19.6	20	CD	**ABJ**
	1	19.6	20	FG	**AHJ**
408A*	1	19.6	20	AEF	**(BG)D**
417A	2	6.3	20	**ADEGH**	**FJ**
427	3	2.5	44	BC	**DE**
428A	3	5	47	BC	**D**
484(485)	3	2.5	32	BC	**DE**
486	2	2.5	48	BC	**DE**
502A	3	6.3	19	CEF	**GH**
(GL502A)					
567	3	5	24	D	**H**
	3	5	24	F	**H**
585	3	7.5	42	BC	**D**
586	3	7.5	42	BC	**D**
615HY	3	6.3	33	N	**G**
Short top caps together.					
713A	2	6.3	25	DFH	**CEG**
717A	1	6.3	23	DFH	**CEG**
Z729	1	6.3	20	AFHJ	**BCEG**
800	3	7.5	54	N	**D**
Short top caps together.					
801	3	7.5	42	BD	**D**
802	3	6.3	29	CDN	**EFG**
807	3	6.3	25	BCN	**DE**
809	3	6.3	27	CN	**D**
811A	3	6.3	34	CE	**D**
Requires jumper from plate cap to pin 5 of any other tube socket.					
812	3	6.3	29	CN	**D**
816	4	2.5	19	N	**A**
837	3	12.6	25	CDN	**EFG**
840	2	2	33	BCN	**DE**
841	3	7.5	45	BC	**D**
842	3	7.5	54	BC	**D**
864	1	1.4	55	BC	**DE**
865	3	7.5	80	BCN	**D**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
866(A)	3	2.5	25	N	**D**
GL874	4	.63	30	C	**ABD**
Good tube reads above 10.					
TJ880*	2	6.3	21	B(CJ)GH	**AE**
884	4	6.3	20	CE	**GH**
885	4	2.5	20	BC	**DE**
950	3	2	46	BCD	**E**
951	2	2	35	BCN	**D**
986	3	5	26	B	**D**
	3	5	26	C	**D**
1003	4	Off	22	E	CH
	4	Off	32	C	EH
1005/ CK1005	4	6.3	26	E	**F**
	4	6.3	26	C	**F**
1006/ CK1006	4	1.4	22	C	**A**
	4	1.4	25	B	**A**
CK1007	4	.63	21	C	**G**
	4	.63	21	E	**G**
CK1027	4	Off	27	DN	**ABFG**
1201*	2	6.3	34	(AE)(CG)	**(DF)H**
1203	1	6.3	33	D	**GH**
1204	2	6.3	26	ACE	**DFGH**
1221	1	6.3	22	BCN	**DEF**
1222	3	6.3	20	BCD	**FG**
1223	1	6.3	22	CDN	**EGH**
1229	1	2	25	BCN	**D**
1231	2	6.3	23	BCF	**DGH**
1232	2	6.3	22	BCDF	**GH**
1237	2	2.5	26	C	**G**
	2	2.5	26	F	**G**
1266	4	Off	95	E	**BCG**
Good tube reads above 10. No open element test on levers C & G. Tube normally shows short in short position.					
1267	4	Off	31	E	**BG**
1273	3	6.3	26	BCF	**DGH**
1274	4	6.3	19	C	**GH**
	4	6.3	19	E	**GH**
1275	3	5	30	B	**CD**
	3	5	30	C	**BD**
1280	3	12.6	26	BCF	**DGH**
1284	3	12.6	25	BCF	**DGH**
1291	1	1.4	33	BC	**AH**
	1	1.4	33	FG	**AH**
1293	2	1.4	32	BF	**H**
1294	1	1.4	57	D	**GH**
Good tube reads above 10.					
1299	2	1.4	30	BCF	**AH**
1603	1	6.3	23	BCN	**DEF**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
1608	3	2.5	24	BC	**D**
1609	2	1.4	32	BCD	**E**
1610	3	2.5	28	BCD	**E**
1612	3	6.3	25	DN	**GH**
1614	3	6.3	24	CDE	**GH**
1616	3	2.5	57	N	**D**
1619	3	2.5	29	CDE	**GH**
1620	1	6.3	22	CDN	**GH**
1621	3	6.3	40	CDE	**GH**
1622	3	6.3	27	CDE	**GH**
1624	3	2.5	26	BCN	**E**
1625	3	12.6	25	CDN	**FG**
1626	3	12.6	32	CE	**GH**
1629	2	12.6	36	CE	**GH**
Eye OP	4	12.6	0	D	**CEGH**
Eye CL	4	12.6	0	CD	**EGH**
1631	3	12.6	27	CDE	**GH**
1632	3	12.6	22	CDE	**GH**
1633	2	25	28	AB	**CG**
1634	1	12.6	20	BC	**FG**
1635	2	6.3	26	CD	**EFGH**
	2	6.3	26	EF	**CDGH**
1642	2	6.3	29	CN	**BG**
	2	6.3	29	DE	**FG**
1654	1	1.4	41	N	**A**
1680	1	6.3	24	AF	**BDEG**
	1	6.3	56	EFG	**ABD**
1851	3	6.3	20	CDN	**EGH**
1852	3	6.3	21	DFH	**CEG**
No open element test on C & H.					
1853	3	6.3	23	DFH	**CEG**
2050/ 2051	3	6.3	17	CEF	**GH**
5516	3	2.5	25	CEN	**BG**
5591	2	6.3	22	AEF	**BCG**
Tube damaged if B or G is moved.					
CK5608A	2	2.5	26	BC	**DG**
	2	2.5	26	EF	**DG**
GL5610	2	6.3	22	**AEF**	**BD**
5618	3	2.5	21	BCDF	**AG**
5642	1	1.4	100	N	**E**
Insert bottom leads into pins 4 & 5 respectively. Use plate cap top lead.					
5651	4	Off	95	**AE**	**BDG**
Good tube reads above 30.					
5654*	2	6.3	22	AEF	**(BG)C**
5659	3	12.6	32	CDE	**GH**
5660	3	12.6	41	CFN	**GH**
	1	12.6	38	D	**GH**
	1	12.6	38	E	**GH**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
5662	3	6.3	23	AG	**BDE**
Filament switch must be in .63 position for short check.					
GL5663	2	6.3	32	AEG	**BC**
GL5670	2	6.3	23	CD	**BFGHJ**
	2	6.3	23	FG	**BCDHJ**
5679	3	6.3	31	C	**ABH**
	3	6.3	31	F	**AGH**
5686*	3	6.3	30	B(FJ)G	(ACH)**D**
5687	2	6.3	24	AB	**CDEF**
	2	6.3	24	GJ	**BDEF**
5690	3	6.3	17	C	**BD**
	3	6.3	17	E	**GH**
5691	3	6.3	28	AB	**CG**
	3	6.3	28	DE	**FG**
5692	2	6.3	26	AB	**CG**
	2	6.3	26	DE	**FG**
5693	2	6.3	27	CDFH	**EG**
CK5694	1	6.3	20	CD	**AG**
	1	6.3	20	EF	**GH**
5696	2	6.3	31	AF	**BDEG**
5722	2	5	47	**AF**	**CD**
5725	3	6.3	20	AEFG	**BD**
5726	1	6.3	23	G	**AD**
	1	6.3	23	B	**DE**
GL5727	3	6.3	18	AEF**G**	**BD**
5731	2	6.3	27	D	**GH**
5749	2	6.3	23	ABEF	**DG**
GL5750	2	6.3	22	A	**BD**
	2	6.3	22	EFG	**BD**
5751	1	6.3	22	AB	**CDE**
	1	6.3	28	FG	**DEH**
CK5755	1	6.3	65	AC	**BDE**
	1	6.3	65	FH	**DEG**
5763	3	6.3	19	ACF**HJ**	**EG**
5814	2	6.3	24	AB	**CDE**
	2	6.3	24	FG	**DEH**
GL5814	2	6.3	25	AB	**CDE**
	2	6.3	25	FG	**DEH**
5823	4	Off	30	A	**CG**
5824	3	25	18	CDE	**AGH**
5842	2	6.3	20	**ADEGH**	**FJ**
GL5844	1	6.3	18	AF	**DG**
	1	6.3	18	BE	**DG**
5845	1	2.5	85	E	**ACD**
	1	2.5	85	A	**CDE**
5847	1	6.3	21	AFH	**DJ**
5852	4	6.3	19	C	**GH**
	4	6.3	19	E	**GH**
5879	1	6.3	26	AGHJ	**CD**
5881	3	6.3	20	CDE	**BH**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
5910	1	1.4	26	BCF	**AE**
5915	1	6.3	24	AF	**BDEG**
	1	6.3	56	EFG	**ABD**
5920	2	6.3	21	BE	**DG**
	2	6.3	21	AF	**DG**
5930	3	2.5	24	BC	**A**
5963	2	6.8	25	AB	**CDE**
	2	6.3	25	FG	**DEH**
5964	3	6.3	18	AF	**CG**
	3	6.3	18	BE	**CG**
5965	1	6.3	18	FG	**HJ**
	1	6.3	18	AB	**CJ**
GL6005	3	6.3	24	**AEFG**	**BD**
6012	4	6.3	18	CEH	**AG**
No open element test on C & E.					
6028*	2	19.6	22	AEF	(BG)**D**
6072	1	6.3	22	FG	**CDEH**
	1	6.3	22	AB	**CDEH**
6073	4	Off	40	**AE**	**BDG**
Good tube reads above 10.					
6074	4	Off	95	**AE**	**BDG**
Good tube reads above 10.					
6080	3	6.3	20	AB	**CH**
	3	6.3	20	DE	**FH**
6082	3	25	15	DE	ABCF**H**
	3	25	15	AB	CDE**FH**
6084	1	6.3	21	AFHJ	**CE**
6085	1	6.3	20	FG	**DEH**
	1	6.3	20	AB	**CDE**
6086	1	12.6	18	ABFJ	CE
(18042)					
No open element test on J.					
GL6087	3	5	39	F	**H**
	3	5	39	D	**H**
6095	3	6.3	22	AEFG	**BD**
6096	2	6.3	22	AEF	**BCG**
6097	1	6.3	23	G	**AD**
	1	6.3	23	B	**DE**
6098	3	6.3	20	CEG	**AH**
6099/CT	1	6.3	23	BE	**DG**
	1	6.3	23	AF	**DG**
6100	2	6.3	25	**AEF**	**DG**
6101	1	6.3	18	BE	**DG**
	1	6.3	18	AF	**DG**
GL6134	3	6.3	21	DFH	**CEG**
6135	2	6.3	25	**AEF**	**DG**
6136	2	6.3	22	ABEF	**DG**
GL6137	3	6.3	24	DFH	**CEG**
6145	3	6.3	16	BCDF	**GH**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6146*	3	6.3	23	CEN	(ADF)**G**
R6158A	1	1.4	96	**N**	**ACDEFGH**
Good = 26. For element test use levers G & N only.					
6159*	3	6.3	23	CEN	(ADF)**G**
6197	2	6.3	20	(BJ)(CH)FG	**AE**
6201	2	6.3	24	FG	**HJ**
	2	6.3	24	AB	**CJ**
6202	3	6.3	25	F	**DG**
	3	6.3	25	A	**DG**
6203	1	6.3	21	A	**EGJ**
	1	6.3	21	J	**AEG**
6211	1	6.3	18	AB	**CDE**
	1	6.3	18	FG	**DEH**
6216*	3	6.3	19	(AF)BG	(CH)**E**
6227	3	6.3	18	BGHJ	**CD**
6265	2	6.3	22	AEFG	**BC**
No open element test on E & G.					
6267	1	6.3	20	AFHJ	**CE**
No open element test on F.					
6293*	3	6.3	18	CEN	(ADF)**G**
6350	1	6.3	22	FH	**DEG**
	1	6.3	22	AC	**BDE**
6360	3	6.3	22	AFG	**BCDEH**
	3	6.3	22	CGH	**ABDEF**
6386	2	6.3	26	CD	**BJ**
	2	6.3	26	FG	**HJ**
6417	3	12.6	22	ACF**HJ**	**EG**
6463	2	6.3	21	FH	**DEG**
	2	6.3	21	AC	**BDE**
6485	2	6.3	22	ABEF	**DG**
6516	1	6.3	19	AEG	**BC**
6520	3	6.3	16	AB	**CH**
	3	6.3	16	DE	**FH**
6525	3	6.3	19	AEFG	**BC**
6550	3	6.3	21	CDE	**GH**
6659	4	Off	38	A	**E**
6660	2	6.3	23	ABEF	**DG**
6661	2	6.3	22	AEFG	**BC**
6662	2	6.3	22	AEFG	**BD**
6663	1	6.3	23	G	**AD**
	1	6.3	23	B	**DE**
6669	3	6.3	32	**AEFG**	**BD**
6677*	3	6.3	22	(BJ)(CH)FG	**AD**
6678	2	6.3	22	BCF	**EG**
	2	6.3	22	AJ	**EH**
No open element test on F.					
6679	2	6.3	24	AB	**CJ**
	2	6.3	24	FG	**HJ**

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
6680	2	6.3	25	AB	CDE
	2	6.3	25	FG	DEH
6681	1	6.3	20	AB	CDE
	1	6.3	20	FG	DEH
6686	3	6.3	19	BGHJ	CE
6688*	2	6.3	21	BGHJ	(AC)E
6689	2	6.3	20	ABFJ	CE
6829	3	6.3	20	AB	CDE
	3	6.3	20	FG	DEH
6883*	3	12.6	19	CEN	(ADF)G
6887	1	6.3	20	B	DE
	1	6.3	21	G	AD
6888	1	6.3	20	CDFH	EG
6893*	3	12.6	21	CEN	(ADF)B
6919	1	6.3	23	B	DE
	1	6.3	23	G	AD
6922	3	6.3	20	AB	CEJ
	3	6.3	20	FG	EHJ
6939	3	6.3	22	AFG	BDE
	3	6.3	22	CGH	BDE
6954	1	6.3	20	AEFG	BD
6973*	4	6.3	19	(AH)(CF)J	EG
7000	2	6.3	29	CDN	AEGH
7025	1	6.3	20	AB	CDE
	1	6.3	20	FG	DEH
7027*	4	6.3	18	(AD)C(EF)	GH
7036	1	6.3	20	AF	BD
	1	6.3	28	EG	BD
7044	2	6.3	19	AB	CDE
	2	6.3	19	GJ	FDE
7054	2	12.6	21	BCGHJ	AE
7055	2	12.6	23	G	AD
	2	12.6	23	B	DE
7056	2	12.6	21	AEFG	BD
7057	2	12.6	22	FG	EH
	2	12.6	22	AB	CE
7059	2	12.6	23	BCF	EG
	2	12.6	21	AJ	EH
7060	2	12.6	28	FGH	EJ
	2	12.6	23	AB	CE
7061*	3	12.6	22	(AH)(CF)J	EG
7062	2	16.3	21	AB	CJ
	2	6.3	21	FG	HJ
7105	3	12.6	15	AB	CH
	3	12.6	15	DE	FH
7119	4	6.3	19	GJ	DEF
	4	6.3	19	AB	CDE
7137	2	6.3	22	AEFG	BD
7167*	3	12.6	22	AEF	(BG)C
7189*	4	6.3	17	(AB)(FJ)G	CE
7193	2	6.3	24	N	GH
Short top caps together.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
7199	1	6.3	19	BCG	EF
	2	6.3	21	AJ	EH
7233	3	6.3	19	(ACFJ)(BG)	DH
7247	1	6.3	22	FG	DEH
	2	6.3	24	AB	CDE
7258	2	12.6	22	AB	CE
	2	12.6	21	FGH	EJ
No open element test on F.					
7308	1	6.3	20	AB	CE
	1	6.3	20	FG	EH
7316	2	6.3	24	AB	CJ
	2	6.3	24	FG	HJ
7355	3	6.3	19	CFH	EG
7360	2	6.3	20	BCFG	AEHJ
7408	3	6.3	24	CDE	AGH
7543	1	6.3	20	ABEF	CG
7551*	3	12.6	19	B(CH)FG	(AJ)E
7558*	3	6.3	19	B(CH)FG	(AJ)E
7581	3	6.3	20	CDE	BH
7586	2	6.3	19	BD	HM
7587	2	6.3	19	BDN	HM
No open element test on N.					
7591	3	6.3	20	CDFH	EG
7643	2	6.3	21	AJ	EH
	2	6.3	20	BCF	EG
7687	1	6.3	19	BCF	EG
No open element test on F.					
	2	6.3	23	AJ	EH
7695	3	50	21	AFJ	EG
7700	1	6.3	20	BCN	DEF
7701*	3	12.6	30	BF(GJ)	(ACH)E
7716	1	12.6	19	BC	AE
	3	12.6	19	GHJ	EF
7719	1	6.3	21	(AF)(BG)	(CH)DE
7751*	3	6.3	20	(AD)CE	BH
7754	3	6.3	20	AFJ	EG
7788*	3	6.3	17	B(FJ)GH	ACE
Tube damaged if A or C is moved.					
7798	2	6.3	20	AB	CJ
	2	6.3	20	FG	HJ
7868*	3	6.3	20	(AG)(BF)J	CE
7895	2	6.3	19	BD	HM
7898	3	6.3	20	FG	HJ
	3	6.3	20	AB	CJ
7905*	2	3.15	24	B(CH)	AGJ
Tube damaged if A or J is moved.					
7984*	3	12.6	19	•	BFHJM
		•(CDE)(GL)K			
8016	1	1.4	98	N	ACDEFGH
Use G & N only for element test.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
Good tube reads above 26.					
8032	3	12.6	23	CEN	ADFG
Tube damaged if AD or F is moved.					
8068	3	6.3	22	EHN	CG
8077*	2	12.6	21	B(CJ)GH	AE
8102	3	12.6	19	FGJ	EH
	3	12.6	19	AC	BE
8106	3	12.6	19	A(CH)G	(BFJ)E
8113	3	6.3	20	AEF	BDG
Tube damaged if B or G is moved.					
8136	3	6.3	19	AEF	BCG
8156	3	12.6	22	•	BFHJM
		•(CDE)(GL)K			
Tube damaged if BFH or J is moved.					
8233*	3	6.3	19	A(BF)CH	DGJ
Tube damaged if G or J is moved.					
8278*	3	6.3	19	(AH)(CG)J	BEF
Tube damaged if B or F is moved.					
8417	3	6.3	19	CDE	GH
8425	2	6.3	22	ABEF	DG
8552	3	12.6	23	CEN	ADFG
Tube damaged if A, D or F is moved.					
8908*	3	6.3	18	(AE)(BF)C	DH
8950	3	12.6	18	•	BFM
		•(CL)(DK)(EJ)N			
Tube damaged if B or F is moved.					
9001*	1	6.3	20	AEF	(BG)D
9002*	2	6.3	27	(AE)F	(BG)D
9003*	2	6.3	27	AEF	(BG)D
9004	1	6.3	20	D	EG
9005	1	2.5	34	E	DGH
9006*	1	6.3	25	AE	(BG)D
FOREIGN					
A1834	3	6.3	16	AB	CH
	3	6.3	16	DE	FH
AA91E	1	6.3	22	B	DE
	1	6.3	22	G	AD
ABC91	3	12.6	32	CDE	GH
AF	3	2.5	24	B	D
	3	2.5	24	C	D
AG	3	5	26	B	D
	3	5	26	C	D
B36	2	12.6	29	AB	CG
	2	12.6	29	DE	FG
B309	2	6.3	24	AB	CJ
	2	6.3	24	FG	HJ
B339	1	6.3	20	AB	CDE
	1	6.3	20	FG	CDE
Tube damaged if D or E is moved.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
D2M9	1	6.3	22	B	DE
	1	6.3	22	G	AD
E82CC	2	6.3	25	FG	DEH
	2	6.3	25	AB	CDE
E83CC	1	6.3	20	FG	DEH
	1	6.3	20	AB	CDE
E-90Z	3	6.3	30	F	DG
	3	6.3	30	A	DG
E92CC	1	6.3	20	BE	ADFG
	1	6.3	20	AF	BDEG
E188CC	1	6.3	20	AB	CE
	1	6.3	20	FG	EH
E810F*	3	6.3	17	B(FJ)GH	ACE
Tube damaged if A or C is moved.					
E-902	3	6.3	30	F	DG
	3	6.3	30	A	DG
EAF801	3	6.3	23	ABF	CDJ
	1	6.3	34	H	CD
ECC808	2	6.3	23	AC	BD
	2	6.3	23	GJ	DH
ECLL800	3	6.3	24	AB	DG
	3	6.3	20	BCJ	DG
	3	6.3	20	FHJ	DG
ED500	1	6.3	26	HK	ABCEFGJ
Tube damaged if ABCFG or J is moved.					
EF37A	3	6.3	28	CDEN	GH
EF804S	3	6.3	25	AGHJ	CD
EL32	3	6.3	29	CDE	AGH
EL-504*	3	6.3	19	(AB)(FG)N	CEH
Tube damaged if C or H is moved.					
EL-505*	4	6.3	21	•	EJ
	•(AH)(BG)(CF)N				
EL-508	3	6.3	20	DEN	GH
FM1000	1	6.3	20	BE	ACG
	1	6.3	35	DF	ACG
G4	1	2.5	45	B	DE
	1	2.5	45	C	DE
GA	3	5	32	BCD	E
HY69	4	6.3	20	BCD	E
HY1269	4	6.3	19	BCN	AE
KR1	3	6.3	24	B	CD
KR5	3	6.3	36	BCD	E
KR25	3	2.5	36	BCD	EF
KR98	3	6.3	26	B	DE
	3	6.3	26	C	DE
PZ	3	2.5	41	BCD	E
PZH	3	2.5	36	BCD	EF
R30	2	2	35	BC	D
R100	3	7.5	43	N	D
Short top caps together.					

Tube	Type	Fil.	Plate	Top (T)	Bottom (B)
RK33	3	6.3	27	DE	FG
	3	6.3	27	CN	BG
RK34	3	6.3	27	EN	DG
Top cap lead on left top cap.					
	3	6.3	27	CN	DG
Top cap lead on right top cap.					
UF89	2	12.6	23	BGH	CEJ
VR75	4	Off	30	E	BCG
Good tube reads above 10.					
VR90	4	Off	30	E	BCG
Good tube reads above 10.					
VR105	4	Off	30	E	BCG
Good tube reads above 10.					
VR150	4	Off	30	E	BCG
Good tube reads above 10.					
WL461	4	2.5	59	N	D
WNDA	3	6.3	35	BC	DEF
WNDC	3	2.5	35	BC	DEF
WX12	1	1.4	55	BC	D
XXB	2	1.4	40	CD	AH
	2	1.4	40	EF	AH
XXD	3	12.6	25	EF	BCDGH
	3	12.6	25	CD	BEFGH
XXFM	1	6.3	27	BC	DGH
	1	6.3	27	E	DH
	1	6.3	27	F	GH
XXL	2	6.3	24	BF	GH
Z2000	1	6.3	22	BE	CG
	1	6.3	22	AF	CG